No. 12495

United States
Court of Appeals
For the Ninth Circuit.

SAMUEL H. PALMER and C. A. WHITE, Partners Doing Business as WESTERN FENCE & WIRE WORKS,

Appellants,

vs.

KARL H. KAYE, MATILDA KAYE and PACIFIC WIRE WORKS CO., a Corporation,

Appellees.

Transcript of Record
In Two Volumes
Volume I
(Pages 1 to 322)

Appeal from the United States District Court Western District of Washington, Northern Division.

Phillips & Van Orden Co., 870 Brannan Street, San Francisco, Calif.

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[Clerk's Note: When deemed likely to be of an important nature, errors or doubtful matters appearing in the original certified record are printed literally in italic; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in italic the two words between which the omission seems to occur.]

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In the United States District Court for the Western District of Washington, Northern Division

Civil Action No. 2106

United States Letters Patent No. 2074665

SAMUEL H. PALMER and C. A. WHITE, Partners, Doing Business as WESTERN FENCE & WIRE WORKS,

Plaintiffs,

vs.

KARL H. KAYE, MATILDA KAYE and PACIFIC WIRE WORKS CO., a Corporation,

Defendants.

COMPLAINT

Plaintiffs complain of defendants and allege as follows:

I.

Nature of Action

This action is brought for injunction and damages for infringement of United States Letters Patent No. 2074665, issued March 23, 1937, for woven wire screens.

II.

Plaintiffs

Plaintiffs are citizens of the State of Oregon, residing at Portland, Oregon, and are partners doing business as Western Fence & Wire Works, Portland, Oregon.

III.

Defendants

Defendants Karl H. Kaye and Matilda Kaye are citizens of the State of Washington, residing in Seattle, Washington, within this District and Division. Defendant Pacific Wire Works Co. is a corporation organized and existing under the laws of the State of Washington, with its principal office and place of business in Seattle, Washington, within this District and Division.

IV.

Jurisdiction

Jurisdiction is based on the patent laws of the United States of America.

V.

Patent

(a) Heretofore and prior to the 2nd day of August, 1934, plaintiff Samuel H. Palmer, then a citizen of the United States and of the State of Oregon and a resident of Portland, Oregon, was within the meaning and the provisions of the statutes of the United States then in force the first original and sole inventor of a new and useful improvement in woven wire screens.

(b) Said Samuel H. Palmer having duly and in all respects complied with the conditions and requirements of the statutes of the United States of America in such cases made and provided did, on or about August 2, 1934, make application to the

Commissioner of Patents of the United States for letters patent on said invention in accordance with the existing acts of Congress, and by virtue of said application and in compliance in all respects with said laws of the United States, on March 23, 1937, letters patent of the United States, signed, sealed and executed in due form as provided by law, were issued to said Samuel H. Palmer for said invention, and numbered 2074665, which said letters patent are now on record in the Patent Office of the United States, and a true and correct copy of which is attached hereto as Exhibit "A" and made a part hereof.

(c) That in 1944 and prior to April 20, 1948, plaintiffs Samuel H. Palmer and C. A. White formed a partnership under the name and style of Western Fence & Wire Works, to manufacture and sell, among other items, woven wire screens under the patent aforementioned, and as a part of the partnership agreement the said patent was transferred to the partnership. The entire right, title and interest in and to said invention and the letters patent issued thereon has been at all times from the time of said invention vested in plaintiff Samuel H. Palmer or in the partnership composed of plaintiffs Samuel H. Palmer and C. A. White and now is vested in said partnership.

VI.

Infringement

(a) Following application by plaintiff Samuel H. Palmer for letters patent as aforesaid, said

Samuel H. Palmer and thereafter the partnership composed of plaintiffs engaged in the manufacture of woven wire screens in accordance with and embodying the said invention and built up and for many years have maintained a substantial and lucrative business in manufacturing and selling said screens, especially for use in the sand and gravel industry.

(b) Despite the fact that they had previously purchased from plaintiffs woven wire screens manufactured by plaintiffs under plaintiffs' patent hereinbefore set forth and had resold the same, defendants have since 1944 and now continue to manufacture, sell and use or cause the manufacture, sale and use within this District and Division and elsewhere within the United States of woven wire screens made in accordance with and embodying the invention disclosed and claimed in plaintiffs' said letters patent.

(c) The action and conduct of defendants in manufacturing, selling and using, or causing to be manufactured, sold and used, woven wire screens made in accordance with, and embodying the inventions disclosed and claimed in plaintiffs' said letters patent, constitute infringements of said letters patent performed wilfully and without the consent of plaintiffs, all to the great, irreparable damage of plaintiffs. Moreover, defendants threaten to continue to so infringe plaintiffs' said letters patent to the great and irreparable damage of plaintiffs.

VII.

Notice

Plaintiffs on April 20, 1948, notified defendants of said letters patent, and of the fact that defendants were infringing the same, but in spite of said notice said defendants continued and are continuing such infringement.

VIII.

Damage

Plaintiffs have been and are being greatly and irreparably damaged, and defendants have obtained and are obtaining large profits, which, in equity, belong to plaintiffs, the amount of which damages and profits plaintiffs cannot ascertain except by an accounting.

Wherefore, plaintiff prays:

1. For an injunction restraining the defendants and their officers, agents, servants and employees from directly or indirectly making or causing to be made, selling or causing to be sold, or using or causing to be used, any woven wire screens made in accordance with, or embodying the inventions of the said United States Letters Patent No. 2074665, or from infringement upon or violating the said letters patent in any way whatsoever.

2. For an accounting of profits and damages, and that said profits and damages to be paid by defendants to plaintiffs be trebled in view of the

wilful and deliberate nature of the infringement.

3. For plaintiffs' costs in this action to be taxed, and a reasonable attorney's fee.

4. For such other and further relief as the Court may deem just and proper.

/s/ F. A. LeSOURD,
Attorney for Plaintiff.

EXHIBIT "A"

No. 2074665

The United States of America

To All to Whom These Presents Shall Come:

Whereas, Samuel H. Palmer, of Portland, Oregon, Presented to the Commissioner of Patents a Petition Praying for the Grant of Letters Patent for an Alleged New and Useful Improvement in Woven Wire Screens, a Description of Which Invention Is Contained in the Specification of Which a Copy Is Hereunto Annexed* and Made a Part Hereof, and Complied With the Various Requirements of Law in Such Cases Made and Provided, and

Whereas Upon Due Examination Made the Said Claimant Is Adjudged to Be Justly Entitled to a Patent Under the Law.

Now Therefore These Letters Patent Are to

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*Identical to Plaintiffs' Exhibit No. 1. See Volume II, page 323 Book of Exhibits—2,074,665.

Grant Unto the Said Samuel H. Palmer, his heirs or assigns for the Term of Seventeen Years from the Date of This Grant the Exclusive Right to Make, Use and Vend the Said Invention Throughout the United States and the Territories Thereof.

[Seal of the United States Patent Office.]

In testimony whereof I have hereunto set my hand and caused the seal of the Patent Office to be affixed at the City of Washington this twenty-third day of March, in the year of our Lord one thousand nine hundred and thirty-seven, and of the Independence of the United States of America the one hundred and sixty-first.

/s/ CONWAY P. COE,
Commissioner of Patents.

Attest:

/s/ H. S. MILLER,
Law Examiner.

[Endorsed]: Filed September 28, 1948.

[Title of District Court and Cause.]

AMENDED ANSWER

Now come the defendants in the above-entitled action and in answer to the complaint of the plaintiffs, allege as follows:

I.

As to the allegations of V (a) the defendants deny each and every one thereof, except that

Samuel H. Palmer was on the 2nd day of August, 1934, a citizen of the United States and of the State of Oregon, and a resident of Portland, Oregon.

As to the allegations of Paragraph V(b), defendants deny each and every allegation therein contained, except that they admit that on August 2nd, 1934, Samuel H. Palmer made application to the Commissioner of Patents of the United States for Letters Patent and that on March 23rd, 1937, Letters Patent of the United States were issued to him, numbered 2074665.

As to the allegations of Paragraph V(c), the defendants have no sufficient information upon which to found a belief as to the truth thereof and they therefore deny each and every allegation therein.

II.

As to the allegations of Paragraph VI(a), the defendants admit that Samuel H. Palmer and the plaintiffs have been engaged in the manufacture of woven wire screens. They have not sufficient information upon which to found a belief as to the truth of the remaining allegations in said paragraph and therefore deny the same.

As to the allegations of Paragraph VI(b), the defendants Karl H. Kaye and Matilda Kaye, admit that they did for a period manufacture and sell woven wire screens but deny that they are doing so now and deny each and every other allegation in said paragraph. The defendant, Pacific Wire Works Company, a corporation, admits that since

January 1st, 1948, it has been manufacturing woven wire screens, but it denies that it did so during any of the remainder of the period alleged and it denies each and every other allegation in said paragraph.

As to the allegations of Paragraph VI(c), the defendants deny each and every one thereof.

III.

As to the allegations of Paragraph VII, the defendant, Pacific Wire Works Company, a corporation, admits that on one occasion the plaintiff, Samuel H. Palmer, orally told Karl H. Kaye, the President of Pacific Wire Works Company, a corporation, that in the judgment of said Palmer said corporation was infringing his patent but said defendant has no sufficient information upon which to found a belief as to whether said notice was given on April 20th, 1948, and, therefore, denies said allegation. The other defendants deny that they, as individuals, were ever given any such notice, and they also deny each and every other allegation in said paragraph.

IV.

As to the allegations of Paragraph VIII, defendants deny each and every one thereof.

For a separate and affirmative defense, the defendants allege as follows:

I.

They deny that the invention alleged by plaintiff, Samuel H. Palmer, in his complaint constituted

any invention or discovery of any new and useful art, machine, manufacture or composition of matter, or any new and useful improvements thereof, or that the plaintiff was the original or first inventor thereof, and aver that the Letters Patent in suit are invalid and void because of lack of invention and lack of novelty, considering the prior state of the art.

II.

Defendants aver that said Samuel H. Palmer was not the original or first inventor or discoverer of any material or substantial part of the thing patented.

III.

Defendants aver that the alleged original invention of the said Samuel H. Palmer referred to in the complaint, had been in public use and on sale in this country for more than two years before his application for a patent and had been abandoned to the public.

IV.

Defendants allege that the names of the patentees, the dates when their patents were granted and the names and residences of the persons alleged to have invented and to have had the prior knowledge of the thing patented are as follows:

Winfield Scott Potter, Pittsburgh, Pennsylvania, Patent No. 1139469, granted May 11, 1951;

James W. Galloway, Hamilton, Ontario, Canada, Patent No. 1907056, granted May 2, 1933. Application filed May 21st, 1932, and in Canada January 22, 1932.

V.

Defendants aver that the alleged patent claimed by Samuel H. Palmer is invalid because of anticipated and prior use and lack of patentable invention; that one J. E. Lippincott designed a similar screen and made prints dated August 31st, 1933, November 28th, 1933, September 29th, 1933, and October 2nd, 1933; that he is an engineer employed by John A. Roebling Sons Company, Trenton, New Jersey, and that John A. Roebling Sons Company manufactured the type of screen covered by his design on or before the dates designated; that the arch deferred to in the claim of the Palmer patent was fully known many years before the alleged Palmer invention and was in no sense new; that it had been known and used or discarded by many manufacturers of woven wire screens long prior to the plaintiff's alleged invention; that among those having knowledge of such arch and having manufactured and sold wire screens involving the alleged invention of the plaintiff in addition to John A. Roebling Sons Company, were:

Manganese Steel Forge Co., a corporation, Richmond and Castor Streets, Philadelphia, Pennsylvania;

The Abbey-Sherer Company, and Frank M. Guess, El Monte, California;

Ludlow Saylor Wire Company, Newstead Avenue and Wabash Railroad, St. Louis, Missouri.

Wherefore defendants pray that the above-entitled action be dismissed and that they have judgment against the plaintiffs for their costs and disbursements in this action and for such other and further relief as to the court may seem meet and just.

/s/ FRED M. CATLETT,
CATLETT, HARTMAN,
JARVIS, WILLIAMS,
Attorneys for Defendants.

Receipt of copy acknowledged.

[Endorsed]: Filed May 4, 1949.

[Title of District Court and Cause.]

STIPULATION

It Is Hereby Stipulated and Agreed by and between the plaintiffs herein represented by their attorneys, Little, Leader, LeSourd & Palmer, Seattle, Washington, and the defendants hereby represented by their attorneys, Catlett, Hartman, Jarvis & Williams, Seattle, Washington, as follows:

1. That the question of infringement may be tried out first in this action and the question of

damages, if any, to be awarded in the event that infringement is found may be deferred for later trial before the court or master.

Dated this 15th day of February, 1949.

/s/ F. A. LeSOURD,
Attorney for Plaintiffs.

/s/ FRED M. CATLETT,
Attorney for Defendants.

Upon the foregoing stipulation, it is so ordered.

Done in open court this 16th day of October, 1949.

/s/ JOHN C. BOWEN,
Judge.

[Endorsed]: Filed October 17, 1949.

[Title of District Court and Cause.]

PLAINTIFFS' PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

This cause having been duly set for trial in the above-entitled court, upon Tuesday, the 18th day of October, 1949, the Honorable John C. Bowen, Judge, presiding, the plaintiff, Samuel H. Palmer, being present in person, and the plaintiffs being represented by their counsel, F. A. LeSourd of Little, Leader, LeSourd & Palmer, and Paul Bliven, and the defendant, Karl H. Kaye, being present in person, and the defendants being represented by their counsel, Fred W. Catlett of Catlett, Hartman,

Jarvis & Williams, and a large amount of evidence, both oral and written and in the form of exhibits, having been presented by both parties, and counsel for both parties having been heard in argument, and the court being fully advised in the premises, now makes the following

Findings of Fact

1.

This action was brought for injunction and damages for infringement of United States Letters Patent No. 2074665, issued March 23, 1937, to the plaintiff, Samuel H. Palmer, for a woven wire screen.

2.

Plaintiffs are citizens of the State of Oregon residing at Portland, Oregon, and are partners doing business as Western Fence and Wire Works, Portland, Oregon.

3.

Defendants Karl H. Kaye and Matilda Kaye are citizens of the State of Washington, residing on Bainbridge Island, Kitsap County, Washington, within this District and Division. Defendant Pacific Wire Works Co., is a corporation organized and existing under the laws of the State of Washington with its principal office and place of business in Seattle, Washington, within this District and Division. Defendants Karl H. Kaye and Matilda Kaye are officers and stockholders of defendant Pacific Wire Works Co.

4.

On or about the 2nd day of August, 1934, plaintiff Palmer made application to the Commissioner of Patents of the United States for Letters patent on an invention of an improvement in woven wire screens and pursuant thereto on March 23, 1937, letters patent of the United States, signed, sealed and executed in due form as provided by law were issued to said Palmer for said invention and numbered 2074665.

5.

In 1944 Plaintiffs formed a partnership under the name and style of Western Fence and Wire Works and said patent was transferred to the partnership. The entire right, title and interest in and to said invention and the rights patent issued thereon has been at all times from the time of said invention vested in the plaintiff Samuel H. Palmer, or in the partnership composed of plaintiffs Samuel H. Palmer and C. A. White and now is vested in said partnership.

6.

Plaintiff Palmer and the partnership composed of the plaintiffs have manufactured and sold screens in accordance with Palmer's invention and have built up a substantial and lucrative business.

7.

In 1944, the business now being conducted by the defendant, Pacific Wire Works Co., a corporation, was being carried on by Pacific Wire Works,

Inc., a corporation; that Pacific Wire Works, Inc., a corporation, was disincorporated December 31, 1944; was the business now being conducted by the defendant, Pacific Wire Works Co. was conducted during the years 1945, 1946 and 1947 by a partnership composed of the defendants, Karl H. Kaye and Matilda Kaye, under the firm name and style of Pacific Wire Works Co.; that on December 31, 1947, that partnership was dissolved, and on January 1, 1948, Pacific Wire Works Co., a corporation, began business.

8.

That the parties hereto prior to trial stipulated that they would first try out the question of infringement and that the question of damages, if any, should be dealt with later.

9.

From 1940 to December, 1944, defendants purchased from plaintiffs and resold screens manufactured by plaintiffs in accordance with the disclosures of the Palmer patent. In December, 1944, defendants stopped such purchases and thereafter supplied their customers with screens manufactured by defendants.

10.

Plaintiffs on April 20, 1948, notified defendants of said letters patent and that defendants were infringing the same.

11.

Plaintiffs' Exhibit 2 is a woven wire screen manufactured and sold by defendants after April 20, 1948, and is a duplicate of a screen manufactured and sold by defendants in December, 1947. It is a screen made for classifying abrasive substances on a revolving, vibrator or shaker machine.

12.

Plaintiffs' Exhibit 2 has a relatively smooth side and a relatively rough side.

13.

Plaintiffs' Exhibit 2 comprises two sets of crossed spring tension high carbon wires, one set being arranged at right angles to the other set.

14.

In Plaintiffs' Exhibit 2 each wire is formed with cold-pressed gradual longitudinal arches, said arches bowing on the smooth side of the screen.

15.

In Plaintiffs' Exhibit 2 the terminals of adjacent arches define relatively shallow crimps on the relatively rough side of the screen, the crimps being coincident with the intersections of adjacent arches.

16.

In Plaintiffs' Exhibit 2 each wire is composed of a plurality of uniformly curved elongated arches and relatively short and gradually formed shallow crimps connecting the arches together.

17.

In Plaintiffs' Exhibit 2 the warp wires and weft wires are of substantially the same gauge.

18.

In Plaintiffs' Exhibit 2 each warp and each weft wire is formed with longitudinal gradual arches bowed on one side of the screen only with adjacent arches defining intersections, shallow crimps on the opposite side of said screen, said shallow crimps being defined by said intersections.

19.

In Plaintiffs' Exhibit 2 the sets of wires are woven with the wires of each set alternately overlying and underlying the wires of the other set.

20.

In Plaintiffs' Exhibit 2 the midpoints of the arches of each set of wires overly the intersections of the arches in the other set.

21.

In making Plaintiffs' Exhibit 2, defendants straightened the wire after it came from the coil and before it was pressed.

22.

The method employed by defendants in the manufacture of plaintiffs' Exhibit 2 was to cold press high carbon spring steel wires so as to form shallow arches bowing in one direction only and shallow crimps between said arches extending in the op-

posite direction only, then crossing the arched and crimped wires in such manner that the concave side of the crimps of each wire underlie the concave side of the arches of the wires transverse thereto.

23.

When force is exerted by a male portion of a die on one point of a high carbon spring steel wire between two closely spaced points in the female portion of the die, the wire is forced downwardly between the female points and those portions of the wire overhanging the female points are raised upwards and tend to form a U shaped object.

24.

Prior to and subsequent to the Palmer invention, the dies used in making woven wire screens have parts thereof bearing on a plurality of points on each side of the wire. These parts are placed relative to each other and their number and position is varied so as to obtain the shape of the wire which is desired.

25.

Plaintiffs make the arches shown in the Palmer patent by adjusting or forming, for the particular size of wire and screen opening desired, the die parts and the operation thereof so that an arch of the desired and proper length, height and radius will be produced.

26.

Defendants made the arches in the wires of plaintiffs' Exhibit 2 by adjusting and forming the die

parts and the operation thereof to provide the formation of wire found in Exhibit 2.

27.

In the Palmer patent the word "arch" refers to that portion of each wire which is convex toward the smooth side of the screen and the word "crimp" refers to that portion of each wire which is concave toward the smooth side of the screen.

28.

The length and radius of the arch shown in the Palmer patent is determined by the size of the wire and the openings of the screen and is the same for screens of the same size wire and openings.

29.

The formation of the wire as shown in the Palmer patent is characterized by the fact that the adjacent arches on the same wire intersect each other, the crimp being composed of the intersection of the two arches.

30.

A single arch as shown in the Palmer patent extends the full width of two openings of the screen, plus twice the diameter of the wire.

31.

The length of the arch shown in the Palmer patent is the width of two openings plus twice the diameter of the wire.

32.

The heighth of the arch shown in the Palmer patent is the diameter of the wire.

33.

The radius of the arch shown in the Palmer patent is that radius which would make an arc of uniform curvature of the length and heighth before mentioned.

34.

In plaintiffs' Exhibit 2, the adjacent arches on one wire of the screen intersect each other and the length of each arch is the width of two openings of the screen plus twice the diameter of the wire, and the crimp consists of the intersection of two adjacent arches.

35.

In plaintiffs' Exhibit 2 the heighth of the arch is the diameter of the wire.

36.

In plaintiffs Exhibit 2 the arch is of uniform curvature throughout its length.

37.

The wearing quality of the screen and the prevention of distortion of the mesh of the screen are of importance in the use of woven wire screens in classifying gravel and other abrasive substances on revolving, vibrator or shaker machines.

38.

The gradual intersecting arches with crimps formed by the intersections of the arches as shown in the Palmer patent gives a relatively smooth surface but not a flat surface on one side of the screen. This relatively smooth surface gives longer wear in use than screens having sudden bends on the wearing surface.

39.

The gradual intersecting arches as shown in the Palmer patent offer resistance to the shifting of the wire passing underneath the center of each arch, thus tending to prevent distortion of the size of the mesh.

40.

Each arch of the wire in a conventional double crimp screen extends only over one-half of the width of the two adjacent openings, plus the diameter of the wire separating the two openings. This shorter curvature of the wire in the double crimp screen causes that screen to have two uniform rough sides which wear more rapidly than the smoother surface of the Palmer screen.

41.

The Potter patent (#1139469) shows no curvature whatever in the portion of the wires of the screen between the cupped or crimped portions thereof. This straight wire between the cups or crimps shown in the Potter patent allows the intersecting wire passing under it to shift, thus dis-

torting the size of the mesh. Manufacturers who are making screens in accordance with the Potter patent are putting in as a modification thereof a nick on the underside of the straight wire to prevent the intersecting wire from shifting.

42.

The sharp cup or crimp shown in the Potter patent cannot be made by cold pressing high carbon spring steel wire without weakening the wire.

43.

The Galloway patent (#1907056) shows the same sharp cup or crimp as Potter, together with an additional sharp crimp in that portion of the wire which is straight in the Potter patent, and which is gradually arched in the Palmer patent. None of these sharp cups or crimps can be made by cold pressing high carbon spring steel wire without weakening the wire and the sharp upward bends caused by the additional crimp shown in the Galloway patent wear away rapidly in use.

44.

The slight roughness of the surface of the screen shown by Palmer in comparison to the flatness of the surface of the screen shown by Potter gives the Palmer screen more efficiency in passing through the screen a large volume of abrasive substances being classified.

45.

The screen manufactured by defendants which

is in evidence as plaintiffs' Exhibit 2 is made in accordance with the disclosures of the Palmer patent.

46.

All screens designed by J. E. Lippincott prior to August 2, 1934, and all screens manufactured by John A. Roebling Sons Company prior to the same date were the same as those shown by the Potter patent (#1139469), or were a variety of the conventional double crimp.

47.

All screens designed, built, manufactured and/or sold prior to August 2, 1934, by Manganese Steel Forge Co., The Abbey-Sherer Company, Frank M. Guess and Ludlow Saylor Wire Company were the same as those shown by the Potter patent (#1139469) or the Galloway patent (#1907056), or were a variety of the conventional double crimp.

48.

There is no evidence that any woven wire screen with the gradual arch and shallow crimp shown by Palmer was ever in public use or published by anyone other than Palmer prior to August 2, 1934.

49.

The invention of Palmer shown in the Palmer patent was not in public use nor on sale in this country nor published anywhere prior to two years before Palmer's application for a patent and said invention had not been abandoned to the public.

50.

Plaintiff Palmer was the first to design or build for use in classifying materials, a woven wire screen which contained gradual shallow arches, the intersections of two adjacent arches forming crimps, woven so as to make one side of the screen relatively smooth and the other side relatively rough, as shown in the Palmer patent.

51.

Prior to the time of the Palmer invention a person skilled in the art could build dies and presses to operate such dies which would shape wires into the form desired for the practice of the Palmer invention.

52.

Men with mechanical skill and with knowledge of the art can produce woven wire screens of any formation desired but until the disclosure was made by Palmer no person had conceived the formation shown by Palmer as a formation desirable for woven wire screens and no person had designed or built such a screen.

53.

The disclosures in the Palmer patent are sufficient to enable anyone skilled in the art to build a woven wire screen in accordance therewith.

54.

The screen disclosed by the Palmer patent is effective and useful for the purpose for which it

was designed, to wit, classifying abrasive substances.

55.

Claims one through four of the Palmer patent, read in the light of the disclosures and drawings contained in said patent, point out particularly and distinctly the improvement which said plaintiff claims as his invention, which is an arch and crimp of the precise character heretofore found, and enable one versed in the art to determine whether a screen is or is not within the claims of the Palmer patent.

56.

Claim five of the Palmer patent read in the light of the disclosures and drawings contained in said patent, points out particularly and distinctly the method of making the screen invented by Palmer and enables one skilled in the art to determine whether or not the method being used is that disclosed by Palmer.

57.

Defendants have failed to establish that one skilled in the art would be unable to construct a screen in accordance with the Palmer invention by reference to the claims and disclosures of the Palmer patent.

58.

Defendants have failed to establish that the Palmer screen was not novel or lacked invention and likewise have failed to establish lack of utility.

59.

Defendants have failed to establish that the method of making the Palmer screen claimed in claim five of the Palmer patent was not novel or lacked invention and likewise have failed to establish lack of utility.

60.

In addition to plaintiffs' Exhibit 2, defendants have manufactured and sold other screens with similar wire formation to that found in Exhibit 2, the length, heighth and radius of the arch varying with the size of wire and the size of the openings in the screen.

Done in Open Court this .... day of November, 1949.

........................,
Judge.

Wherefore, the court makes the following
Conclusion of Law

1.

This court has jurisdiction of this proceeding under the Patent Laws of the United States.

2.

Plaintiffs are the owners of the Palmer Patent No. 2074665, issued March 23, 1937.

3.

Plaintiff Palmer was, within the meaning of the provisions of the statutes of the United States then

in force, the first, original and sole inventor of a new and useful improvement in woven wire screens, as disclosed in said Letters Patent No. 2074665; that said Palmer duly and in all respects complied with the conditions and requirements of the statutes of the United States of America in such cases made and provided; that the application for his patent was made in accordance with the existing Acts of Congress and was in compliance in all respects with said laws of the United States.

4.

The invention of Palmer, patented as aforesaid, was not anticipated by the screen shown by Potter in Patent No. 1139469.

5.

The invention of Palmer, patented as aforesaid, was not anticipated by the screen shown by Galloway in Patent No. 1907056.

6.

The invention of Palmer, patented as aforesaid, was not anticipated by any screens designed, built or published by J. E. Lippincott or by John A. Roebling Sons Company.

7.

The invention of Palmer, patented as aforesaid, was not anticipated by any screens designed, built or published by L. W. Jones, Jr., Manganese Steel Forge Co., Frank M. Guess, Abbey-Sherer Company, Duncan C. Dobson, or Ludlow Saylor Wire Company.

8.

The screen invented by Palmer, patented as aforesaid, constituted an invention and discovery of a new and useful improvement to woven wire screens, and plaintiff Palmer was the original and first inventor thereof.

9.

The letters patent issued to Palmer, as aforesaid, are valid.

10.

Defendants have infringed said letters patent issued to Palmer.

11.

Under the Patent Laws of the United States of America, plaintiffs are entitled to an injunction against defendants, enjoining them from infringement of said letters patent issued to Palmer during the life of said patent.

12.

Plaintiffs are entitled to an accounting from defendant Pacific Wire Works Co. for profits and damages by reason of the manufacture and sale by said defendant, since April 20, 1948, of screens infringing on the patent issued to plaintiff Palmer.

13.

That plaintiffs are entitled to a judgment against defendant Pacific Wire Works Co. for treble the amount of said profits and damages, in view of the wilful and deliberate nature of the infringement.

14.

That plaintiffs are entitled to their costs in this action to be taxed and a reasonable attorney's fee.

Done in Open Court this .... day of November, 1949.

........................,
Judge.

Presented by:

/s/ F. A. LeSOURD,
Of Counsel for Plaintiffs.

Service of copy acknowledged.

[Endorsed]: Filed November 14, 1949.

[Title of District Court and Cause.]

FINDINGS OF FACT, ETC.

This cause having been duly set for trial in the above-entitled court, upon Tuesday, the 18th day of October, 1948, the Honorable John C. Bowen, Judge, presiding, the plaintiff, Samuel H. Palmer, being present in person, and the plaintiffs being represented by their counsel, F. A. LeSourd of Little, Leader, LeSourd & Palmer, and Paul Bliven, and the defendant, Karl H. Kaye, being present in person, and the defendants being represented by their counsel, Fred W. Catlett of Catlett, Hartman, Jarvis & Williams, and a large amount of evidence, both oral and written and in the form of exhibits, having been presented by both parties, and counsel

for both parties having been heard in argument, and the court being fully advised in the premises, now makes the following

Findings of Fact

I.

This action was brought for injunction and damages for infringement of United States Letters Patent No. 2074665, issued March 23, 1937, to the plaintiff, Samuel H. Palmer, for a woven wire screen.

II.

Plaintiffs, Samuel H. Palmer and C. A. White, are citizens of the State of Oregon, residing at Portland, Oregon, and are partners doing business as Western Fence & Wire Works of Portland, Oregon.

III.

The defendants, Karl H. Kaye and Matilda Kaye, are citizens of the State of Washington, Karl H. Kaye residing on Bainbridge Island and said Matilda Kaye residing in Seattle, within this district and division; that the defendant, Pacific Wire Works Co. is a corporation, organized and existing under the laws of the State of Washington, with its principal office and place of business in Seattle, Washington, within this district and division.

IV.

That the jurisdiction of this court is based upon the patent laws of the United States of America.

V.

That heretofore and on the 2nd day of August, 1934, the plaintiff, Samuel H. Palmer, then a citizen of the United States and of the State of Oregon and a resident of Portland, Oregon, filed an application for a patent on a woven wire screen, claiming to be the first original and sole inventor of a new and useful improvement of said type of screen; that said Samuel H. Palmer prosecuted said patent, and on March 23, 1937, Letters Patent of the United States signed, sealed and executed in due form provided by law, were issued to said Samuel H. Palmer for said claimed invention, and numbered 2074665, which said Letters Patent are now on record in the Patent Office of the United States.

VI.

That in 1944, plaintiffs, Samuel H. Palmer and C. A. White, formed a partnership under the name and style of Western Fence & Wire Works, to manufacture and sell, among other items, woven wire screens under the patent aforementioned, and the partnership agreement treated said patent as an asset of the partnership, and the plaintiff testified he intended by said instrument to transfer said patent to said partnership and plaintiffs are proper parties plaintiff.

VII.

Following an application by plaintiff, Samuel H. Palmer, for letters patent, the said Palmer, and thereafter the partnership composed of the plain-

tiffs, engaged in the manufacture of woven wire screens of the flat top type, generally speaking, and built up a substantial business for the manufacture and sale of such screens, especially for use in the sand and gravel industry.

VIII.

In 1944, the business now being conducted by the defendant, Pacific Wire Works Co., a corporation, was being carried on by Pacific Wire Works, Inc., a corporation; that Pacific Wire Works, Inc., a corporation, was disincorporated December 31, 1944; that the business now being conducted by the defendant, Pacific Wire Works Co., was conducted during the years 1945, 1946 and 1947 by a partnership composed of the defendants, Karl H. Kaye and Matilda Kaye, under the firm name and style of Pacific Wire Works Co.; that on December 31, 1947, that partnership was dissolved, and on January 1, 1948, Pacific Wire Works Co., a corporation, began business.

IX.

That prior to 1944 the Pacific Wire Works, Inc., had purchased screens from the plaintiff and, from time to time since, the partnership and Pacific Wire Works Co. have purchased some of plaintiffs' screens; that prior to 1944, the defendants were not manufacturing screens of this type themselves, but in 1944, deeming that competition compelled them to do so, they began to manufacture screens of a flat top type, generally speaking, with openings one and one-quarter inch (1¼″) up to four inches

(4″); that plaintiffs made screens of the smaller types, but the defendants, except for a few of the one and one-quarter inch (1¼″), do not make screens of the flat top type, generally speaking, in the lower sizes; that the plaintiffs' range also runs as high as six inches (6″); that defendants, during the respective period aforementioned and since 1944 have manufactured, sold and used or caused to be manufactured, sold and used within this district and division and elsewhere within the United States woven wire screens of the flat top type, generally speaking, and have also built up a substantial business in selling said screens, many of which are for use in the sand and gravel industry.

X.

That plaintiff, Samuel H. Palmer, on or about April 20, 1948, notified defendant, Karl H. Kaye, that in his judgment the defendant, Pacific Wire Works Co., was infringing his patent; that the defendants denied that their screens infringed the plaintiff's patent and continued to manufacture screens of the flat top type, generally speaking.

XI.

That the parties hereto prior to trial stipulated that they would first try out the question of infringement and that the question of damages, if any, should be dealt with later.

XII.

That the defendants, Karl H. Kaye, and Matilda Kaye, are not now manufacturing or selling said

wire screens and have not since the 31st day of December, 1947.

XIII.

That the one known feature which identifies the flat top type screen is that the crimps are all on one side of the screen, and there is a practically flat wearing surface on the other; that the plaintiffs' and the defendants' screens are both of the flat top type, generally speaking; that prior to the plaintiffs' application for a patent, patents for flat top types of screen had been issued as follows:

> Winfield Scott Potter, Pittsburgh, Pennsylvania, Patent No. 1139469, granted May 11, 1915;
>
> James W. Galloway, Hamilton, Ontario, Canada, Patent No. 1907056, granted May 2, 1933. Application filed May 21st, 1932, and in Canada January 22, 1932.

XIV.

That the plaintiffs produced in evidence only one sample of the range of screens they make, to wit, a one and one-half inch ($1\frac{1}{2}''$) mesh; that the defendants produced a large number of samples of wires which go into the different meshes they make; that from the claims of the patent and from the evidence in the case, including statements of the plaintiff, Palmer, it would be impossible for anyone, even though acquainted with the art, to duplicate with certainty the Palmer screen or avoid such duplication; that the screens are manufactured by

the defendants by a punch, and that when the plunger on the punch descends, the wire on both sides of the crimp will spring up, and, if held down at points some distance from the plunger, will naturally form an arch; that to avoid this arch it is necessary to use pads to prevent it from forming, or flatten it out; that manufacturers of screens generally regard the arch as a disadvantage and endeavor in every way to eliminate it; that this arch was known long before plaintiffs' patent and that the manufacturers deliberately reduced or removed it.

XV.

That from all of the evidence, the Court concludes that the claims of the plaintiffs set forth in the Palmer patent have no novelty; that they do not represent any invention, or any improvement over prior art or any change or improvement which would not readily occur to a skilled mechanic familiar with screen making; that the ideas in said patent claimed to be new were either known to prior art or anticipated by the Potter and Galloway patents and the screens marketed and sold thereunder; that there is no utility in the claimed invention, and that the claims do not contain a written description of the invention and discovery sufficient to point out particularly, and do not distinctly claim the part or improvement or combination which Palmer claims as his invention so as to inform the public the limits of the monopoly asserted, and so that the public may know which features may be safely used or

manufactured without a license and those which may not.

XVI.

That even though the patent of plaintiffs did not lack invention, novelty, utility, definiteness and any advance on the prior art, the screens manufactured by the defendants do not infringe upon the plaintiffs' patent.

Done in Open Court this 14th day of November, 1949.

/s/ JOHN C. BOWEN,
Judge.

Wherefore, the Court makes the following

Conclusions of Law

I.

That each and every one of the five claims of plaintiffs' patent is invalid because of lack of invention, novelty, utility, definiteness, and any advance on the prior art.

II.

That the screens made by the defendants do not infringe any of the plaintiffs' claims.

III.

That the plaintiffs are not entitled to any injunction against the defendants or any accounting of profits and damages or any costs, nor are defendants entitled to any costs or allowances against plaintiffs.

Done in Open Court this 14th day of November, 1949.

/s/ JOHN C. BOWEN,
Judge.

Presented by:
CATLETT, HARTMAN, JARVIS & WILLIAMS.

Receipt of copy acknowledged.

[Endorsed]: Filed November 14, 1949.

In the United States District Court for the Western District of Washington, Northern Division

Civil Action File No. 2106

SAMUEL H. PALMER and C. A. WHITE, Partners Doing Business as WESTERN FENCE & WIRE WORKS,

Plaintiffs,

vs.

KARL H. KAYE, MATILDA KAYE and PACIFIC WIRE WORKS CO., a Corporation,

Defendants.

DECREE

This matter coming on regularly for trial before the above-entitled court, Judge John C. Bowen presiding, and having been set for trial on the 18th day of October, 1949, plaintiff, Samuel H. Palmer, being present in person and the plaintiffs being repre-

sented by F. A. LeSourd of Little, Leader, LeSourd & Palmer, and Paul Bliven, and the defendant, Karl H. Kaye, being present in person and defendants being represented by Fred W. Catlett of Catlett, Hartman, Jarvis & Williams, and a large amount of evidence, both oral and documentary and by way of exhibits, having been presented by both parties, and counsel for both parties having been heard in argument, and the court having heretofore made findings of fact and conclusions of law in favor of defendants,

It Is Hereby Ordered, Adjudged and Decreed that Patent No. 2074665, issued March 23, 1937, to Samuel H. Palmer, is, in respect to each and every one of its five claims, invalid; that if valid, the screens manufactured by the defendants have in no wise infringed said patent, and the screens now being manufactured do not infringe on said patent; that the plaintiffs are entitled to no relief under their complaint; but no costs are allowed.

Done in Open Court this 14th day of November, 1949.

/s/ JOHN C. BOWEN,
Judge.

Presented by:
CATLETT, HARTMAN, JARVIS & WILLIAMS.

Receipt of Copy Acknowledged.

[Endorsed]: Filed November 14, 1949.

[Title of District Court and Cause.]

MOTION FOR NEW TRIAL

Come Now the plaintiffs by and through their attorneys, F. A. LeSourd and Paul Bliven of Seattle, Washington, and move the court for a new trial in this cause, and for the reopening of the decree, the making of new findings of fact and conclusions of law, and the entry of a decree in favor of the plaintiffs on the following grounds:

1. In holding that the written description of the invention and discovery is not sufficient to point out particularly the part or improvement or combination which Palmer claims as his invention and that from the patent and the evidence, it would be impossible for one acquainted with the art to duplicate with certainty the Palmer screen or avoid such duplication, the Court has decided this case on an issue not raised by the pleadings and as to which no direct evidence was introduced, thus depriving plaintiffs of the opportunity of meeting such a contention. An objection to a patent on the ground that the terms of either the specifications or claims thereof are not sufficiently full, clear, concise and exact to enable any person skilled in the art to duplicate or practice the invention must be raised in the pleadings.

2. This court has failed to give effect to the applicable decisions of the Supreme Court of the United States requiring defendants to establish the

invalidity of plaintiffs' patent beyond a reasonable doubt.

3. This court has erred in holding that plaintiff Palmer's invention was anticipated by the Potter and Galloway patents.

4. This court has erred in holding that plaintiff Palmer's patent exhibited only mechanical skill.

5. This court has erred in holding that a person skilled in the art could not practice plaintiff Palmer's invention from the disclosures made in his patent.

6. This court erred in holding that the claims of the Palmer patent are not sufficiently clear to inform the public of what is within the patent and what is not.

7. This court erred in holding that the arch shown in the Palmer patent was formed naturally in the process of crimping, rather than being intentionally formed by the shape of the dies.

8. This court erred in finding that the screens are manufactured by a punch instead of a die.

9. If the last clause of Paragraph XIV of the court's findings of fact herein is intended to be a finding that the arch shown in the Palmer patent was known long before Palmer's invention, then the court erred in so finding.

10. The court erred in finding that the claims in the Palmer patent do not represent any invention, or any change or improvement over the prior art.

11. That if the next to last clause of Paragraph XIV and the fourth clause of Paragraph XV of the findings of fact herein, are intended to be a finding that the matter covered by the Palmer patent was not useful at the time for the purposes set forth in the patent, that is, useful within the meaning of the patent law, capable of being beneficially used for the purpose for which it was designed, then the court also erred in so finding.

12. The court erred in finding that even though the Palmer patent does not lack invention, novelty, utility, definiteness and any advance on the prior art, the screens manufactured by the defendants do not infringe upon the plaintiff's patent.

Dated this 23rd day of November, 1949

/s/ F. A. LsSOURD,
/s/ PAUL BLIVEN,
Attorneys for Plaintiffs.

Receipt of Copy Acknowledged.

[Endorsed]: Filed November 23, 1949.

[Title of District Court and Cause.]

ORDER DENYING MOTION FOR NEW TRIAL

This matter coming on regularly for hearing before the above-entitled court, Judge John C. Bowen presiding, upon the 5th day of December, 1949, at

2:00 o'clock p.m., the plaintiffs being represented by their counsel, F. A. LeSourd and Paul Bliven, and the defendants by their counsel, Fred W. Catlett, and both parties having been heard in argument, and the court being fully advised in the premises,

It is Hereby Ordered, Adjudged and Decreed that the plaintiff's motion for new trial be and it is hereby denied.

Done In Open Court this 5th day of December, 1949.

/s/ JOHN C. BOWEN,
Judge.

Presented by:
/s/ FRED W. CATLETT,
Attorney for Defendants.

Approved as to form:
& exception taken
/s/ F. A. LeSOURD,
Attorney for Plaintiffs.

Receipt of Copy Acknowledged.

[Endorsed]: Filed December 5, 1949.

In the United States District Court for the Western District of Washington, Northern Division

No. 2106

SAMUEL H. PALMER and C. A. WHITE, d/b/a WESTERN FENCE & WIRE WORKS,
Plaintiffs,

vs.

KARL H. KAYE, MATILDA KAYE and PACIFIC WIRE WORKS CO., a Corporation,
Defendants.

COURT'S DECISION ON PLAINTIFFS' MOTION FOR NEW TRIAL

The Court: I have listened with interest to this point made by counsel for plaintiffs, that the issue involving definiteness of the formula for the plaintiffs' patent process was not brought to his attention in time for him to meet that issue during the trial, and in that connection I think it appropriate to say that if counsel were an inexperienced attorney at the bar if, he had not done much trial work before this case, that argument would have much stronger weight with the Court than it does by reason of the circumstances that this Court knows that counsel on both sides of this case are among the ablest members of the local bar, both from the standpoint of their professional preparation for the practice of law and from the standpoint of their actual experience in the practice of law.

Plaintiffs' counsel is no exception to that statement. He had a legal training in his student days that compares with the best afforded in the nation's best law schools. He had a splendid public experience in the Department of Justice at the National Capital, and following that he was a successful member of the bar of the District of Columbia, all of which distinguished him as an able lawyer and an able practitioner of the law in that jurisdiction. Since he resumed active practice at the Seattle bar, he has been a member of one of the leading law firms of this city, and has participated in some of the city's most desirable and important law business, both in and out of court.

I am sure that he must have appreciated that the matter which is the subject of his comment in connection with this motion for new trial was an important point in the progress of the trial, and I am sure that if he had actually been dissatisfied with the circumstance that that issue was not, as he now claims for the first time in connection with the motion for new trial, properly within the issues of the case, his outstanding legal ability would have suggested the propriety of his making such an objection at some appropriate time during the trial.

I do not feel that the plaintiffs have been prejudiced by anything related to that circumstance, because the point was inquired of on more than one occasion during the trial, and I am sure that whatever importance it assumed in the Court's mind must have been brought to the attention of all those

connected with the trial near the beginning of the trial, which lasted approximately four days. During that period there was plenty of time for plaintiffs' counsel to appropriately advise the Court of plaintiffs' objection that the patent process formula evidence was not within the pleadings. Plaintiffs' counsel did not do that until the motion for new trial was made.

With respect to the merits of the case, I do not see anything in the present argument on the motion for new trial which was not fully explored and considered by counsel on both sides and also by the trial judge during the trial and at the conclusion thereof when the case was being argued and considered on its merits.

In my opinion, one reason, in addition to those previously stated, why plaintiffs' patent is invalid is that, after all is said and done about this case and all of the evidence relating to it, the basic primary principle of gravel screen wire weaving involved in plaintiffs' patent has been known to cloth weavers for generations. It is basically and primarily nothing more than the ordinary basket weave style of weaving ordinarily employed in the cloth weaving industry.

The only way you can get in plaintiffs' gravel screen wire net weaving process any variations of that basic primary principle of basket weaving of cloth is to introduce some discussion and consideration about the different kinds or sizes of the wires to be used in making the wire net gravel screen, instead

of, if you were weaving cloth, discussing and considering the kinds or sizes of warp and woof that might be used in making the ordinary basket weave style of cloth weaving. But in such considerations, as applied to plaintiffs' patent process, is to be disclosed no valid patent.

The motion for new trial is denied.

[Endorsed]: Filed December 22, 1949.

[Title of District Court and Cause.]

NOTICE OF APPEAL

To Karl H. Kaye, Matilda Kaye and Pacific Wire Works Co., a Corporation, and Catlett, Hartman, Jarvis & Williams, their Attorneys:

Notice Is Hereby Given that Samuel H. Palmer and C. A. White, petitioners above named, hereby appeal to the United States Court of Appeals for the Ninth Circuit from the final judgement entered in this action on November 14, 1949, and the denial of petitioners' motion for a new trial on December 5, 1949.

/s/ F. A. LeSOURD.

Attorneys for Petitioners, Samuel H. Palmer and C. A. White, Partners Doing Business as Western Fence & Wire Works.

[Endorsed]: Filed December 20, 1949.

[Title of District Court and Cause.]

ORDER EXTENDING TIME FOR FILING RECORD ON APPEAL

This Matter having come on before this Court on the motion of the petitioners, by and through their attorneys for an order extending the time for filing the record on appeal and docketing the action, and the Court having considered said motion and the affidavit in support thereof and being duly advised in the premises, now, therefore,

It is hereby Ordered that the time for filing the record on appeal and docketing the action be, and it is hereby extended to March 13, 1950.

Done In Open Court this 23rd day of December, 1949.

/s/ JOHN C. BOWEN,
Judge.

Submitted by:

/s/ F. A. LeSOURD,
Attorney for Petitioners.

Approved:

CATLETT, HARTMAN, JARVIS & WILLIAMS,
Attorneys for Respondents.

[Endorsed]: Filed December 23, 1949.

[Title of District Court and Cause.]

PLAINTIFFS' DESIGNATION OF RECORD ON APPEAL

To the Clerk of the Above-Entitled Court:

Please transmit as the Record on appeal in this case the entire file in the Clerk's original file in this case, including plaintiff's Narrative Statement of the Proceedings at the Trial, plaintiffs' Statement of Points and this Designation.

Dated this 28th day of February, 1950.

/s/ F. A. LeSOURD,
LITTLE, LEADER,
LeSOURD & PALMER,
Attorneys for Plaintiffs

Receipt of Copy Acknowledged.

[Endorsed]: Filed March 1, 1950.

In the District Court of the United States for the Western District of Washington Northern Division

No. 2106

SAMUEL H. PALMER and C. A. WHITE, Partners Doing Business as WESTERN FENCE & WIRE WORKS,

Plaintiffs,

vs.

KARL H. KAYE, MATILDA KAYE and PACIFIC WIRE WORKS CO., a Corporation,

Defendants.

Before: The Honorable John C. Bowen, District Judge.

NARRATIVE STATEMENT OF TRANSCRIPT OF PROCEEDINGS AT TRIAL

Seattle, Washington
October 18, 1949, 10:00 o'Clock A.M.

F. A. LeSOURD, of
LITTLE, LEADER, LeSOURD & PALMER,
PAUL BLIVEN,
Appearing for and on Behalf of Plaintiffs.

FRED W. CATLETT, of
CATLETT, HARTMAN, JARVIS & WILLIAMS,
Appearing for and on Behalf of Defendants.

The case was called for trial by the court and both parties answered ready, whereupon the following proceedings were had. (Plaintiffs' Exhibits 1, 8, 9, 10, 11, 15 and 16; Defendants' Exhibit A-6, previously admitted in pretrial hearing.) Plaintiffs' Exhibit 18 was admitted subject to objection of defendants to check to see if it was an accurate photostat. Plaintiffs' Exhibits 12, 13 and 14 were admitted. Defendants' Exhibits A-9 to A-27 were admitted. Plaintiffs' Exhibit 19 was marked for identification. Defendants' Exhibit A-28 was marked for identification.

Whereupon, opening statements having been made by counsel for plaintiffs and counsel for defendants, the following proceedings were had:

MITCHELL T. BOWIE

called as a witness by and on behalf of plaintiffs, having been first duly sworn, was examined and testified as follows:

Direct Examination

In answer to questions by Mr. LeSourd, the witness testified:

My name is Mitchell T. Bowie and I reside at 1519 East 50th, Seattle. I have been a resident of Seattle about forty years. I am not actively engaged in business at this time, but [1*] have some property to keep up. My business previously was electrical con-

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*** Page numbering appearing at bottom of page of original certified Transcript of Record.**

(Testimony of Mitchell T. Bowie.)

tracting and dealer in Ballard, where I was in business thirty-three years. I have no interest in the present lawsuit.

Plaintiffs' Exhibit 2 is a screen I bought from Pacific Wire Works Company. I ordered the screen over the telephone, ordering a duplicate of one they had sold to Reliance Supply in December, 1947. I made a mistake in ordering the size of the openings, and after they checked they called me back and told me it was 1½ opening. I had a 1½ by 1½ when I talked to him. I told him to make it a duplicate of the one they got in December, 1947, from Pacific Wire Works.

The individual in calling back did not identify himself as calling from the Pacific Wire Works Company because I never asked him because I had put the order in to them and he had called me back and told me that the one they had made before was an inch and a half opening, and I suppose by that he checked the invoice of the one in 1947 to know, because I didn't ask him questions about it, didn't ask him a thing. I don't know the name of the person I talked to. I never asked. In calling back, he referred to my previous order of this type screen which was placed with the Pacific Wire Works Company.

Later I took delivery of the screen at the Pacific Wire Works factory, where I called personally, and Plaintiffs' Exhibit 2 was delivered to me. I made them a check before they made the screen. They wouldn't make it until I paid them, and I sent the

(Testimony of Mitchell T. Bowie.)

check to them. They said it would be ready in a certain time, and it wasn't ready the day it was supposed to be. I called them the next day and went down and picked it up.

Plaintiffs' Exhibit 19 is the invoice I got at the time I got the screen. I got the invoice from the young fellow [2] there, the gentleman at the end of the table. It was a slim young fellow, I know. That was at the Pacific Wire Works Company. (Mr. Catlett stated that the gentleman's name was Mr. Thacker.) I was delivered this invoice.

(Mr. LeSourd moved the admission of Plaintiffs' Exhibit 2 and Plaintiffs' Exhibit 19.)

In answer to questions by Mr. Catlett, the witness testified:

I identified Plaintiffs' Exhibit 2 because I tied the wire on the end, and I have got three file marks on a spot there in the screen. I took the screen home and then Mr. Palmer come and got it, and from there I don't know where it has been. Mr. Palmer is the plaintiff in this case. I delivered it to him just a day or two after I got it. I couldn't tell you. That was two or three weeks ago. It hasn't been in my possession for at least three weeks. (Plaintiffs' Exhibits 2 and 19 were received in evidence.)

Cross-Examination

In answer to questions by Mr. Catlett, the witness testified:

I am not related to Mr. Palmer. My connection

(Testimony of Mitchell T. Bowie.)
with him is that I have known him since we were quite young men. We have been friends for 30—about 36 years. I bought this screen because Harris asked me to get it for him. Harris is Mr. Palmer. I didn't have any use for it myself, and didn't buy it for my use. I asked for a duplicate of the screen manufactured back in 1947 because he asked me to get a duplicate of that screen. He told me what particular screen he wanted duplicated. Mr. Palmer paid me for the screen.

SAMUEL H. PALMER

called as a witness by and on behalf of plaintiffs, having been first duly sworn, was examined and testified as follows: [3]

Direct Examination

In answer to questions by Mr. LeSourd, the witness testified:

My name is Samuel H. Palmer, and I am the person referred to by the last witness as Harris Palmer. The H. stands for Harris. I am sixty years old and reside at the present time in Portland, Oregon. I am manager and partner of the Western Fence and Wire Works. I am the Samuel H. Palmer named as inventor in the United States Patent No. 2074665, which was granted March 23, 1937, and is here admitted as Plaintiffs' Exhibit 1. Western Fence and Wire Works is a partnership doing business under that assumed name. This partnership was formed in 1942, the other partner being C. A. White. He is

(Testimony of Samuel H. Palmer.)

the only other partner. The patent is an asset of the partnership, which would be the owner, I presume. The partnership now holds the right to this patent.

I am one of the plaintiffs in the present action. My experience in metal working industry started in the winter of 1907 and 1908 when I went to work for the Seattle Wire and Iron Works as an apprentice, to become an ornamental wire and iron worker. I served my apprenticeship under the same man that ran the Seattle Wire and Iron Works, with the exception of one interruption where I worked, I would say, about four months with the Pacific Wire Works, or Pacific Wire and Plating, it was known in those days. Then I became a journeyman. I moved around a little, worked at different shops to broaden by experience and during the year 1913 I worked in Portland. At that time business was kind of quiet and I came back to Seattle and went into the electrical business and remained in that for a period of about five years, or until the Armistice was signed. I was working with the Skinner & Eddy Shipyard Corporation, and from there I left and went back to Portland and took the foremanship [4] of the wire department of the Northwest Fence and Wire Works at Portland, and I worked there until 1928. At that time, I was superintendent and assistant manager.

In 1928 the corporation was purchased by the United States Steel Corporation and merged with

(Testimony of Samuel H. Palmer.)
the Cyclone Fence Company. I remained at the head of that for two more years. Then the depression hit us and knocked us out of a job, and about that time the wire screen business got to a point where there was no demand for it. Up until the early twenties, there was very little use in wire screens for industrial purposes. What I mean by that is the screening of aggregate, mining, and so forth, but in those later years I have had—with my position, I came in contact with the users or the potential users, more or less, and the weak spot was to get a good wire screen.

I was foreman and then assistant superintendent of Northwest Fence and Wire Works between 1918 to 1928. They were the leading wire fabricators in the Northwest, I would say, in the industrial wire screen, and my business was to manufacture—to see that they were manufactured. I was in charge of the manufacturing and was fully responsible for the design of their products. Also I had responsibilities with regard to the design of the tools by which those products were made.

The Northwest Fence and Wire Works was sold to United States Steel in 1928. I remained there and took charge of that division that they just recently purchased as manager of the Northwest territory, sales manager. We took care of the sales and what fabricating there was done in the Northwest. That was for a subsidiary of the American Steel and Wire Company, which they merged it with.

While I was with Northwest Fence and Wire

(Testimony of Samuel H. Palmer.)

Works, the fabricating was all custom-built work. The fabricating that we [5] had to do with in Portland was custom-built and made to order. Gravel screens had been manufactured by the old Northwest company. They inherited this business when they purchased it, so we carried it on. The Northwest Fence and Wire Works at the time I was with them made quite a variety of products. They had wire gravel screens in the small sizes, and wire window guards, partition work, wire partitions, window grilles, ornamental iron work and custom built gates. When I was with American Steel and Wire their products were manufactured in the East. They had a branch plant in Oakland and their main product that we handled was chain link fence, chain link wire fence used for industrial and estates purposes. They sold gravel screens only through the Portland setup. I was in Portland during all of this period.

I terminated my work with American Steel and Wire in the fall of 1931. The plant had closed down because of the depression. I thought I better get out and make a good gravel screen so I started to work on it to create a job for myself. My employment terminated the latter part of 1931, but I didn't get out for myself until the first part of 1932. It took me a few months to get on my feet, get straightened around, know what to do. In the first part of 1932 I started to build myself a loom and set up business for myself in the wire business, chiefly sand and gravel screen and industrial wire cloth, and we also took on little sales agencies in order to keep going.

(Testimony of Samuel H. Palmer.)

I called my business the Western Fence and Wire Works. We started to develop a gravel screen. There was very few wire screens used for that purpose in those days under, we will say, ¾ of an inch opening, very few above that. They used boiler plate. I say they used very few gravel screens made of wire, a small amount of them previously in the twenties. I refer to the public [6] generally due to the fact that they didn't seem to stand up and they didn't stand up, so what was used was boiler plate with holes punched in it. My experience has been that ninety per cent was boiler plate and by making a screen with better wire and more lasting qualities, we developed it into something pretty good.

With regard to the other type of screens which were in use besides the flat boiler plate with holes punched in it, at the old company we manufactured a screen wire with what we would call a double crimp. Plaintiffs' Exhibit 8 is a double crimp. The characteristics of a double crimp are that all crimps are exactly the same, this wire and this wire (indicating). The crimp is this indentation (indicating). The crimp is exactly the same on both sides. When we refer to the crimp we refer to the forming of the wire, the indentations of the wire, the bending of the wire into the crimps, the short kinks makes the crimp. In the double crimp when the wire is woven into the screen the indentation on one side of the wire is the same as the indentation on the other side of the wire. You take the straight wire and make an equal indentation on both sides, running it through

(Testimony of Samuel H. Palmer.)

a set of gear wheels, and each tooth would press it out of its original shape. This double crimp screen has been in use 300 or 400 years, maybe, ever since the discovery of wire. I might express it this way, the double crimp screen is woven the same as a piece of cloth, over and under.

In the gravel industry the use of the screen is for the sizing and classifying of crushed rock, concrete, aggregates, and ore, mining ore. In the gravel and like industries the most efficient way that is done today, they have a vibrating frame which is called the vibrating screen, and these screen cloth sections which we are talking about is the screen that fits into these frames with the exact size openings and classifies the [7] aggregate by passing over and through these holes, through the mesh. They usually use one screen on top of another. They are made in decks. There is four, three and two deck screens and there is also single deck screens. They make them in decks to get different classifications. They will have a different size opening screen on one deck and a different one on the other, and so on, whatever the specifications call for. The result that would have in segregating the different sizes of gravel is that it would allow—like we were asking for—the specifications call for, for example, three-quarters minus. You would have a three-quarter screen and all the rock that was three-quarter size and less would drop through there. Then you would have a rejection of the quarter inch out of the three-quarters. Then

(Testimony of Samuel H. Palmer.)
you put a quarter inch screen deck under this one to reject the quarter, and the material flowing down onto the small mesh would flow off of this screen into the proper bunkers, where it is classified and weighed out.

I have called these vibrators because they are mechanical vibrating machines to shake it, to give it the screening action. The screen frame moves. The rate at which it moves all depends on just what you are doing and the weight of the material. I would say from 800 to 3200 vibrations per minute. We have some magnetic types that run even a little bit faster than that. The manufacturers have their own idea on the amplitude of movement of the screens. Some of them are making a shaker type and some of them have an oscillating type, and some of them just shake it up and down. With regard to how far they move, they are all adjustable. The limit, I would say, would be about 3/8 of an inch. That is as far as the vibrators go. They are adjustable from nothing to 3/8 of an inch. These screens move at the rate per minute to which I have testified, and will move from one side to [8] the other from zero to 3/8 of an inch. The movement of most of them is up and down or endwise. They are built on a pitch. The screen is set on about a 45 pitch, and that pitch is also adjustable according to the material, and it shakes endwise. The screens are assembled so that it is, say, 3 by 10 or 4 by 12 and the material travels from one end to the other. In an efficient plant, running in the average material, I would estimate the load carried

(Testimony of Samuel H. Palmer.)

by the screens as about 6000 pounds per square foot per hour. That may vary a trifle one way or the other, but it will average that. By 6000 pounds I mean that weight in crushed rock, say. That is delivered onto the screen by means of a conveyor. The conveyor brings this material up and dumps it onto the screen at the average rate of 6000 pounds per square foot per hour. A good screen should run about 150 to 200 yards per hour.

With regard to the advantages or disadvantages of the double crimp type screen, used in the manner that I have testified to, the double crimp, to my estimation, is about the best—well, has the most efficiency of any screen on the market, due to the fact that it is not perfectly smooth. It is rough, but the objectionable part is that it has the sharp crimps on the wearing side of the screen, and these crimps wear off and then your screen goes to pieces. At the time I commenced my business in 1932 the other types of screens in use for this purpose included a flat top screen made by, I think, the Audubon Wire & Cloth Company. They were manufacturing it at that time, and that was patented under the Potter patent which was about to run out. Plaintiffs' Exhibit No. 7 is identical to the Potter screen. I made Plaintiffs' Exhibit No. 7 in accordance with the Potter patent.

In answer to questions by Mr. Catlett, the witness testified:

I made Plaintiffs' Exhibit No. 7 about three months ago. No, I made it about a year ago. I made it for the purpose of using it at this trial.

(Testimony of Samuel H. Palmer.)

I wanted to show the difference. I experimented with screens under the Potter patent before, and had made a few for sale. I am not licensed under the Potter patent, but made them anyway. We put a little lock notch in them first, something like they do down in California.

(Plaintiffs' Exhibit 7 received in evidence.)

In answer to questions by Mr. LeSourd, the witness testified:

Plaintiffs' Exhibit No. 5 is the same as the Potter patent. I made Plaintiffs' Exhibit No. 5 and it is identical with the Potter patent.

In answer to questions by Mr. Catlett, the witness testified:

I made this screen about three weeks ago for the purpose of use in this case to demonstrate. I made it this size so it would be convenient to handle. I presume that the wire works don't make one with the arch top in a screen of this size. However, we do.

In answer to questions by the Court, the witness testified:

I spoke of Plaintiffs' Exhibit 8 as illustrating the double crimp form of screen. In Plaintiffs' Exhibit No. 7, the characteristic so far as form or shape of the wire is concerned is that the wire is crimped with one deep crimp and then it has a straight line over and across the next cross wire

(Testimony of Samuel H. Palmer.)

and then has another deep crimp to receive the alternate cross wire, which gives it a flat surface on one side and all the crimps or bumps on the opposite side.

In answer to questions by Mr. LeSourd, the witness testified:

The characteristic of Plaintiffs' Exhibit 7 may be put this way, that the crimps are all in one direction, leaving the [10] space between the crimps straight. The wire that is spaced between the crimps is straight. This form of wire shown in Plaintiffs' Exhibit 7 is disclosed in the Potter patent. The distinctive feature of the Potter patent type of screen is that it has a perfectly flush surface on one side and rough on the opposite side. Plaintiffs' Exhibit 5 is an example of that same characteristic.

(Plaintiffs' Exhibit 5 received in evidence.)

When I commenced business for myself in 1932 we started to manufacture and sell a screen of the ordinary double crimp and then we worked along towards the flat top and finally arrived at the one we are making today. I sold some of the Potter screens along in August—that was in June, 1932. We found that the Potter screen wasn't much of an improvement over the punched plate. The advantages of the Potter screen or the flat top screen over the previous screens were that being flush on one side it produced a greater wearing surface,

(Testimony of Samuel H. Palmer.)

and the objectionable part was that it was smooth similar to the punched perforated plate, and the material would have a tendency to slide over it instead of through it. It was not quite as efficient as the other type screens that were used previously in production, but they would outwear the former screens. The former screens were the double crimp screens. I can't say that the Potter screen had any other advantages or disadvantages. The one disadvantage was in the fabricating, that it was necessary to make that crimp so sharp and deep that it was not permissible to use as high a carbon or as high a tensile strength wire as if you could eliminate that. In 1932 90% of the wire used for gravel screens was bright basic known as bright basic low carbon wire. The other types were a high carbon hard drawn and oil-tempered, and there was some made of oil-tempered, and some made of high carbon, [11] hard drawn. With regards to the words "high carbon" and "low carbon," we refer to them as 45 per cent carbon and higher is high carbon, but low carbon usually runs around 15 per cent. When I speak of high or low carbon, I am referring to a characteristic of the wire. It has a carbon content which permits the wire to be drawn to a higher tensile strength. The high and low carbon refers to the carbon content of the wire. That carbon content has something to do with the tensile strength of the wire. High carbon wire can be drawn to a higher tensile

(Testimony of Samuel H. Palmer.)
strength than a low carbon. The high carbon wire is used in our screen today. We sell that screen under the name of Flint screen, but it is under the Palmer patent. We call it the arch crimp. This high carbon has been used in the so-called double crimp screens where the mesh was not too close or too tight. If you made a close mesh with this high carbon wire, you would have your crimp, your wire, so deep it would fracture in the manufacture. That is in the double crimp, it would fracture and separate. The high carbon is the most desirable for use in gravel screens because it lasts longer. It resists the abrasion better.

High carbon wire could not satisfactorily be used in making a screen under the Potter patent. You couldn't use as high a carbon as we are using today, because it would fracture in the short one-way crimp.

In 1932, we will say, 1929, the federal specifications became very rigid. This new oil mat came out which they are using on the highways, and they were very specific in their classifications to the aggregate, and they held us to a five per cent tolerance. By a five per cent tolerance I mean that if they asked for a three-quarter rock, for example, they would allow five per cent over or above in quantity production. An oil [12] mat is a non-skid surface that is put on top of concrete or macadam pavement. By the five per cent tolerance, I mean that the rock was not acceptable if it was more

(Testimony of Samuel H. Palmer.)

than five per cent larger than or less than five per cent smaller. They are very particular on that. These specifications mean that the mesh had to be almost perfect and they had to be made rigid enough to prevent distortion in use, distortion of the mesh in use. If you had distortion, you wouldn't get your classification due to the fact that you would have large and small holes throughout your screen. By distortion I mean that the wires would shift so that the opening would be larger or smaller.

Considering the advantage or disadvantage of the Potter patent with relation to distortion, the Potter patent has nothing to hold it in mesh, because one crimp is entirely removed, and there is absolutely nothing to hold it, and the excessive vibrations would shift it. Referring to Plaintiffs' Exhibit 7, your short crimp is underneath on the bottom and there is no crimp on the topside. The flat side where it crosses the next cross wire. It has a tendency to shift, nothing to hold it. With regard to the direction of shifting, every other one will go either forward or back, as demonstrated here. It shifts along the bottom side of the flat wire.

I attempted to develop a screen to meet these objections. I lessened the short crimp, made that not quite so deep, and then put the balance of the crimp in the long sloping arch, sufficient to prevent the shifting of the cross wire. Plaintiffs' Exhibit 1 is the screen that I developed. We found in our

(Testimony of Samuel H. Palmer.)

practice that it would hold its mesh throughout the life of the screen. The screen was developed in this way. We put a short crimp on the bottom—we will call it the back of the screen, and in that short crimp rested every other cross wire, or every other cross wire [13] rested in this short crimp, and the short crimp on the opposite wire rested in a slight arch which projected from one short crimp to the other. Each wire in the screen was formed with a sharp crimp and on every other mesh—we had a short crimp, and we would pass over the following wire, which was the next mesh, with a slight arch. There was a slight convex shape between the two short crimps. I use the words "convex" and "arch," a slight arch, it is the same thing.

In answer to questions by the Court, the witness testified:

We had two short crimps at the end of the arch. We have one short crimp, then a long arch, then a short crimp. The long arch runs the same direction as the wire.

In answer to questions by Mr. LeSourd, the witness testified:

The arch is on the opposite side of the wire as compared to the crimp. The short crimps are all on one side of the wire and the arch is on the other side of the wire between those two short crimps. The crimps and arch alternate. We have a short crimp, then we have a long arch, then we have a

(Testimony of Samuel H. Palmer.)

short crimp. The short crimps are all on the down side of the wire, we will say, and the arches are all on the top side, and they alternate throughout the length and width of the screen or the wire, so I have this entire wire comprising a series of a short crimp and then a long arch and then a short crimp and then a long arch throughout the length of the wire. The crimps are all on one side of the wire and the arches are all on the other side of the wire. When woven together it makes a right and a wrong side to the screen.

(At 12:05 o'clock p.m., Tuesday, October 18, 1949, proceedings recessed until 1:30 o'clock p.m., Tuesday, October 18, 1949.)

October 18, 1949, 1:30 o'Clock P.M.

In answer to questions by Mr. LeSourd, the witness testified:

With regard to the shape of each rod in the screen that I invented, each rod is formed with a series of short crimps, alternated by a long elongated arch between the short crimps. The short crimps are all in one direction and the arch in the opposite direction. With regard to the meaning of the terms "crimp" and "arch," what we meant is the crimp is on the down side of the screen, is made as short as possible without fracturing the wire. When I say as short as possible, I am speaking of the length of the crimp. The arch is made as shal-

(Testimony of Samuel H. Palmer.)

low as possible but still sufficient to prevent the shifting of the cross wire. That is, right angles to the arch where they cross. I am speaking of the crimp and arch in the Palmer screen.

The radius is made on the short crimp approximately two-thirds of the diameter of the wire. It depends upon the characteristic of the wire and the size of the mesh you are making and the size of wire used. The arch is as shallow as possible, and it is as long as possible, but still it must leave a convex side on the lower part of the arch for the cross wire to lay in to prevent it from shifting. That prevents it from shifting, because as soon as it starts to move in one direction or the other, it runs into the shallower part of the arch, or part of the wire that does not project up as high, and it meets resistance which forces it back into its natural position. I make the arch as shallow as possible to throw as much metal up on the abrasion side, or the wearing surface of the screen, as possible. The effect of that is that it prolongs the life of the screen. When these rods are woven into the screen, the relative position of [15] the crimps and the arches are that the arches are all on the—we will call it the up side, and the short crimps are on the opposite side. With regard to the characteristic of what I call the up side, or the arch side of the screen as to its flatness or roughness, the top side of the screen is a relatively smooth surface and the opsite would be—or what we call the wrong side of the screen would be exceptionally rough.

(Testimony of Samuel H. Palmer.)

Plaintiffs' Exhibit 3 is a sample off of the screen manufactured under the Palmer patent by ourselves. It is taken from a screen manufactured by me under my patent. It illustrates the formation that I have been testifying to. Looking at it, here is our elongated arch on the top side, and on the opposite side is the shorter crimp which holds this right angle wire in place, and the high part of the arch holds the next one to it, which throws all these arch crimps on relatively the same plane, as you can see by looking down on top of it. The opposite side is rougher.

Plaintiffs' Exhibit 4 is a Palmer patent which we manufacture. I think it is a five-eighths opening. It is a Palmer screen. It is another example of my screen that I have made for illustrative purposes.

Plaintiffs' Exhibit 6 is manufactured off of the Palmer patent, and it is one that is what we call wore out, and you can see that the arch still remains on the bottom side, and the meshes are pretty rigid, but there isn't much metal left. When I spoke of the underside of the arch, I was speaking of the underside of that portion of the wire which is elevated into an arch. The underside of the arch is still intact and holds its shape. The top part is wore off from the aggregate. In speaking of the underside of the arch, I wanted to draw attention that the arch still remains in the wire as far as all practical purposes is [16] concerned. With re-

(Testimony of Samuel H. Palmer.)
gard to the relationship between the crimps to which I have testified and the underside of the arch, the underside of the arch is the distance between the short crimps. It has two sides, top and bottom. I am speaking of the bottom part of the arch. That is not the same thing as the crimp. The underside of this arch is between the two short crimps.

In answer to questions by Mr. Catlett, the witness testified:

Plaintiffs' Exhibit 6 came off of the Pacific Building Material Supply Company. We got it from one of our customers. The Pacific Building Material Supply Company of Portland. We got it about three months ago. I am able to identify it as one of the Palmer screens by the way it is manufactured, by the arch underneath, and we also identify it—they have used no other screen, to my knowledge.

(Plaintiffs' Exhibits 3, 4 and 6 received in evidence.)

In answer to questions by Mr. LeSourd, the witness testified:

The difference between the screen made under my invention and the Potter screen is that the Potter screen is made perfectly flat and ours has a slight arch in it which prevents the shifting of the wires or mesh distortion. In making this state-

(Testimony of Samuel H. Palmer.)

ment I am referring to the top side of the screen. With regard to the same side of the screen, I say that the Potter is perfectly flat, and mine has a slight arch which prevents distortion. With regard to the difference in the crimp between the two screens, we make our crimps a little longer on account of using a higher abrasive steel, or higher carbon, harder wire. It is not possible to use the higher wire in the Potter screen, higher carbon wire, without changing it some. That is because the crimps are too abrupt, too sharp. That has a tendency to fracture the wire in the fabricating.

Referring to Plaintiffs' Exhibit 4, which is a small [17] scale of the Palmer-type screen, and Plaintiffs' Exhibit 5 which is a small scale of the Potter-type screen, an example of what happens to the screens under use is that in the Palmer screen, Plaintiffs' Exhibit 4, this arch here crosses this wire right in the center of it and when the pressure is applied here, you can't shift it. It won't shift. It keeps its mesh. I am trying to distort that screen with a pair of pliers and as I demonstrate I cannot make the screen shift. It has the same pressure put on it when it is in operation going like that with the rocks in it, vibrating with the weight on it. Plaintiffs' Exhibit 5 has no arch in it and is the Potter patent, and you can put it on here and you have distortion and you can't get away from it. I squeeze it with the pliers not near as hard as I did the other one with not

(Testimony of Samuel H. Palmer.)

as much pressure, and this screen is distorted. I am speaking of Plaintiffs' Exhibit 5. These two screens, Plaintiffs' Exhibits 4 and 5, are made of the same size wire and the same alloy, we will call it. They have the same characteristic of wire and are of the same opening.

I am familiar with the Galloway patent, a copy of which is introduced as Plaintiffs' Exhibit 11. The formation of the wire in that patent consists of very short crimps. There is three of them to every two meshes, and in order to do that it would have to be a softer wire than what we use in the Palmer patent. In this Galloway screen, there is a little difference on the two sides, not a great deal. One side is flatter than the other. On the flatter side the rod is crimped in such a way that it has three bumps, we will call it, to two meshes, and those crimps are crimped on the radius of the wire of the size used in the screen. The difference between that screen and the screen made in accordance with my patent is that we have eliminated two of those bumps in the two meshes and replaced it with the [18] elongated arch. The elongated arch I am speaking of takes the place of that portion of the wire in the Galloway screen that has three bumps in it. There is a disadvantage to the Galloway screen. It seems here, too, that this Galloway screen has another feature to it that we haven't talked about. The cross wires are crimped as an ordinary double-crimped screen. This screen is

(Testimony of Samuel H. Palmer.)

made up of two sets of rods. They are not formed identically, not according to this cut, they are not. The cut I am speaking of now is Exhibit 11, which is the Galloway screen. I am speaking of figure 3 on that exhibit. It shows that the extra crimp which would either be the warp or the shot wire, there is no way of telling here, and in Figure 6—well, I'll tell you, he has got two different types on one sheet. There are two types here on one patent. One type has two sets of rods with the three bumps, and the other type has one set of rods with three bumps and one set with one bump or crimp. I would presume that in each of the screens shown on the Galloway patent the wire with the three bumps is on the wearing side or the top of the screen. That would be the flatter side. The three bumps are on the flatter side of the screen. I presume the flatter side would be used for ordinary work because it would give you a little more metal. It would prolong the life of the screen by having more metal to grind away. The comparison between my screen and this Galloway screen is that we have eliminated two of those bumps and replaced it with a slight arch. In the Palmer screen there is a slight arch in place of the part of the wire that has the three bumps. There is a disadvantage to those three bumps. You have three protrusions there that is higher than the—which would take the wear off rapidly and shorten the life of the screen. That is not true of the screen made under

(Testimony of Samuel H. Palmer.)

the Palmer patent. We only have one long hump there and the wearing surface increases until the screen is wore more than half way through. I wouldn't think it possible to make the screen under the disclosures of the Galloway patent with high carbon wire because you have too abrupt crimps which would have a tendency to fracture the wire. When I say "too abrupt crimps," I am referring not to the number of crimps but the sharpness of the crimp.

In order to get a clear picture of the manufacture of the Palmer screen, it is necessary to understand that it has to go through two distinct operations, and one is the preforming of the wire, which is the placing of the crimps and arches in the proper shape and distance apart which determines the size of the mesh you are about to make. After this preforming operation, you put the rods into the loom and weave them together with cross rods, the same as you would ordinary cloth or basket weave. The rod is shaped, the first of the two processes, by running it through a crimper. That crimper can be either a gear crimper or it can be a press crimper, and those crimps in order to make a perfect screen must be precise. They must be exact. They must be exact throughout the screen, the individual screen that you are making. I am speaking of the forming of the crimps and the arches. They must be all alike. They must be exact with relationship to each other. There is two

(Testimony of Samuel H. Palmer.)

sets, there is the long way of the screen which we call the warp, and the cross ones, which are at right angles to the warp, woven in over and under. When I say they must be exact, I am referring to the fact that in the preforming if you preform your crimp correctly, your screen will come out straight. If you don't preform them exact, by the time you get to the end of the screen, your mesh is all distorted. It is all sixes and sevens, in other words. When I speak of exact, I am referring to the length and the depth of the crimps and the arches. They must be the same. The curvature must be the same [20] to make a perfect job. The curvature must be the same as compared to each other.

In answer to questions by the Court, the witness testified:

We use dies to determine the curvature of the arches. They are pressed, either pressed through a roll or through a plunger punch press.

In answer to questions by Mr. LeSourd, the witness testified:

When these rods or wires are put into the die or crimp, they are cold. It is possible to press them hot, but there is a big advantage not to, for the simple reason that it don't cost so much. If you had to heat all that wire it would be prohibitive in cost because you would anneal it, wove it, and then you would have to retemper it. We control the exactness in length and depth and curvature

(Testimony of Samuel H. Palmer.)

of the crimps and arches in this manner: The mechanic who sets up the machine, he has to set that according to his own judgment for each screen that he is going to make. Once he finds his right crimp, he runs out a few wires, say five, and then he weaves them together by hand and then he tests them for spring, density and accuracy and spacing. When he finds he has his machine set correctly, he locks his machine in that position and runs out the wire rods for his particular order without changing that machine. If he changed that machine, the screen would be ruined in between. With regard to what it is inside of that machine that requires this wire to take an exact shape, the punch press is—if you are using the press type, which is mostly used on this type of construction, it consists of a slide and a crank and a connecting rod. The connecting rod connects the slide to this crank, and the punch part is put into this slide, and the die is held solid in the block. As the crank turns over, the slide goes forward or back or up and down, whichever position your punch press is in, and the depth of that crimp [21] is regulated by lengthening or shortening this connecting rod, which is adjustable. The shape of the arch is controlled the same way, done through a progressive way. That is one way you can do it. For different sizes of wire we have a little different procedure in that crimping. The main thing is to get the results. You can regulate that arch with just a stripper

(Testimony of Samuel H. Palmer.)

plate, or some of the finer ones you put in two crimps at a time, and you have your teeth so set that when you come down, you make two short crimps. An arch forms automatically in between. If you don't understand what a stripper plate is, I might explain that.

By adjusting the dies and the stripper plate and the other elements of that machine, you can control the shape of the arch and the crimp. You can either do that in your die or you can do it in the adjustment of the machine. By the machine, I mean the crimper which can be a punch press or a gear crimper which has a set of rolls on it. If you pressed a crimp into a wire cold, as I have stated, and didn't control the two ends of the wire into which you pressed the crimp, you would probably make a staple, or pretty near. A staple is U-shape. It would form up in a U if you don't hold it down. In other words the two ends of the wire would go straight up in the air. The stripper plate holds that from raising up, or that can be built into the die. In other words, you must control those two ends in order to get any kind of a straight wire. In that control you can regulate that control so as to determine whether the wire between these crimps is flat or is arched. That must be controlled.

After my development of this screen, the Palmer screen, I commenced right away to manufacture and sell screens made in accordance with my invention.

(Testimony of Samuel H. Palmer.)

I have been manufacturing and selling them ever since that time. The territory that we cover in [22] our actual sales is pretty hard to tell because we sell so much through dealers. We don't know just where it goes to but we do know we have shipped some to the old country. There is India and South America, Cuba. Our main outlet is the northwest territory. I first began to make screens under the principles of the Palmer patent in the latter part of August in 1932 when we got to it. We got it perfected, I would say, along about the middle of 1933. The business in the manufacturing of screens under the Palmer patent has been very good and very remunerative. We manufacture the screens made under the Palmer patent in mesh or wire sizes from 7/16th opening up to 6 inches or whatever the demand is. [23]

The size wire that is used is from a 5/32 to one inch. I am speaking of the diameter of the wire. Sizes 5/32 to one inch inclusive. There isn't much difference in demand between the sizes. It is pretty well spread out. In tonnage I would say it would be about an inch and a half opening and larger.

In answer to questions by the court, the witness testified:

There really isn't any size mesh used more than other mesh sizes. The largest mesh like we make out of the inch rod there isn't so much of those. The smallest screen we have made so far is the 7/16 opening with this particular weave. That is the mesh. The largest is six inches.

(Testimony of Samuel H. Palmer.)

In answer to questions by Mr. LeSourd, the witness testified:

When I say 7/16 opening, the opening is different than mesh. Technically speaking, the mesh is from center to center of your wire. The opening is the distance between the wires, the clear space opening. When I say 7/16 I am referring to opening.

Ninety per cent of these screens are made on order. There has been nothing standardized but you can put a reasonable stock in, lay up a reasonable stock. The sizes asked by the customers vary considerably. It is not only in the size of the opening, but our biggest difficulty comes in the dimensions of the screen itself to fit the individual equipment that the customer is operating. That necessitates screens of a large assortment of sizes. Screens made in accordance with my Palmer patent are used in industries other than the gravel industry. They are used in mining, screening ore, and they are also used in the pulp mills, screening chips and sawdust.

I have sold screens manufactured by me in accordance with the Palmer patent to Mr. Kaye. I think it was from 1932—I know it ended in 1944. Mr. Kaye sold these screens to his [24] customers. That ended in 1944. After that he made them himself, I guess. He got tooled up and made them himself. I have found screens made by Mr. Kaye that I felt infringed my patent. I wouldn't know

(Testimony of Samuel H. Palmer.)

how many of such screens I have seen, but I have seen them out at the different gravel pits and customers, and I have also seen them in shipment, en route. I have seen one batch, made a pretty good truck load. I knew they were Mr. Kaye's screens because the bill of lading came from his place and they had his shipping tag on them. We have seen screens made by Mr. Kaye off and on ever since I went in business down there. Prior to 1944 he got them from us but he didn't buy them all I found out later.

In answer to questions from the Court, the witness testified:

These were flint screens. He bought some from us and then he made some.

In answer to questions by Mr. LeSourd, the witness testified:

That was prior to 1944. After 1944 he made them all that he sold in the flat top that I know of. There are screens that have been introduced in evidence here that is the same as the screens of Mr. Kaye that I have seen and believe infringe my patent. One is Defendant's Exhibit A-23. Another is Plaintiffs' Exhibit 2. Another is Defendant's Exhibit A-26. Another is Defendant's Exhibit A-24. Another is Defendant's Exhibit A-21. Another is Defendant's Exhibit A-25. Without measuring them, I would say that is about all. They are samples, you know, they are pretty small to determine. The screens I have seen in the various gravel pits

(Testimony of Samuel H. Palmer.)

and other places concerning which I have testified, the screens of Mr. Kaye, are similar in construction to the screens that I have just pointed out with respect to their infringement of my patent. That would show up a little plainer if you had a larger screen because they are so [25] short there they don't have a chance to form to their respective shapes. All the ones I have inspected in the field have that arch in them like No. 2. Some of them are a little more, some of them a little less. It depends on the openings. With regard to what the defendants have called the screens that I have testified are similar to Plaintiffs' Exhibit 2, he started out calling them flat top. I don't know what he is calling them now. He might put on that —he had 4-S on it also. Flat top, 4-S.

I have notified the defendants that they were infringing my patent in my opinion. I went over to Mr. Kaye's office in April, 1948, on the 20th. I was over there that day, if I remember right, I gave him an order for some wire cloth that he was making for us, or increased it, but I asked him if he didn't think our patent was worth anything, and he said he thought it was. Well, I says, "You are making there a screen just like ours," and he says, "No." It was like ours, but he said he wasn't putting no arch in it, that just fell into it, and I told him it didn't make any difference how he made it, that he still had the same result. I told him our screen was made up of a combination of

(Testimony of Samuel H. Palmer.)

short crimp and the arch, and he told me at that time that he would consult a patent attorney and give him his opinion. I received a letter from him. Plaintiffs' Exhibit 15 is the letter I received from Mr. Kaye.

The screens of Mr. Kaye's that I believe infringe my patent are made of high carbon, hard drawn wire. Plaintiffs' Exhibit 2 contains high carbon, hard drawn wire.

In answer to questions by the Court, the witness testified:

By hard drawn I mean the temper is drawn into it and not put in with a heat treatment. It makes a spring wire that way. Exhibit 2 is made of a high carbon, hard drawn wire. I claim that hard metal and hard drawn metal are inherent characteristics [26] of the process of manufacturing screens under the principles of the Palmer patent in this way, that it is possible to use a high carbon, hard drawn in the process. We ordinarily use the high carbon, hard drawn. Of the other essential characteristics of the patented process under the Palmer patent, the next is in the crimping, the crimping and the arching, the combination of the short crimp and the slight arch.

In answer to questions by Mr. LeSourd, the witness testified:

At the time I developed my screen it was a problem in the industry of how to make a screen so as

(Testimony of Samuel H. Palmer.)

to use high carbon and that is one of the reasons that led us to do this, to figure it out. It is a part of my invention that I am able to use spring steel high carbon wire in the screen. It is possible to use a higher carbon wire in the construction of our screen due to the fact that we do not have to put such severe crimps in it. When I say higher carbon I mean higher than you can use in an ordinary screen, the Galloway screen or the Potter screen, or a double crimp screen in the same openings. You have to compare the same openings.

In answer to a question by the Court, the witness testified:

With regard to whether a short crimp is less severe than a long crimp, to clear that up, by making the elongated arch in there, you do not have to make your short crimp so sharp. In other words, the crimp that is put into the short crimp, the depth of it and the arch combined, must be a trifle less than the diameter of the wire that it crosses. If you add some of this to the arch, you can deduct it from your short crimp, which would make it less severe.

In answer to question by Mr. LeSourd, the witness testified:

The deeper and sharper you make the crimp, that means it is more severe on the wire the more you punch it. A more gradual [27] crimp wouldn't have a tendency to separate the grain in the wire

(Testimony of Samuel H. Palmer.)

as much as a short crimp, more of a gradual crimp. The sharp crimp would be the more severe on the wire. By sharp, I mean the deep, sudden crimp.

Cross-Examination

On cross-examination the witness, Samuel H. Palmer, testified, in answer to questions by Mr. Catlett:

With regard to whether crimps were a new thing in the art in 1932, I would say "yes" and "no." It depends upon where they are placed. Crimps were known to the art long before 1932, wire was always crimped when it was woven. Arches were not known to the art before 1932 to my knowledge. I had never seen the arch in screens of any type, not the ones we are referring to. With regard to double crimp screens I wouldn't call that an arch. That which I would call an arch has more radius to it, more elongated, I mean. With regard to whether it is still an arch whether it is elongated or short, you can call it that if you want. If you want to call it an arch, go ahead. We'll say they have arches in there.

The depth of your crimp depends upon the size of your wire. The line of demarcation between the low carbon and high carbon content wire is around 35. carbon, but we use 45. in the wire game. 45. wire, that is 45 units of one per cent. I mean less than 35. is low carbon. I can't answer as to how high a carbon content of wire they use in mak-

(Testimony of Samuel H. Palmer.)

ing Potter screens, but I can answer you the tensile strength. They can't use over 180,000 pounds tensile strength in it. I know how high a carbon content wire they can use in making the Potter screens. I would say 45., that is in a hard drawn. If you are going to talk about annealed, you can use probably 100. When you ask what content wire, how high carbon content wire they do use in the Potter [28] patent, I don't know who you mean by they. All I know is what we can do to it. We can use up to 45. hard drawn. We are not making the Potter patent any more. Roebling's are making it. They are using less carbon content than we are. They call it high carbon content wire.

In the Galloway patent the carbon content wire they are using, some of them go up as high as 45., very seldom higher. I know that of my own knowledge. Roebling is making it under the Galloway patent right now. Also the Standard Fence Company, Cyclone Fence Company. We make a little once in awhile. Manganese Steel is making under the Potter patent, too. They are also making under the Galloway. I think you will find the Twin City Iron Works in Minneapolis doing it, too. When you ask how large manufacturers are Roebling's, I don't know what you mean by bigness. They are much larger than we are. Manganese Steel are larger than we are. Ludlow-Saylor are pretty good sized. They started to make a flat top, too. I don't know whether it is under the Potter patent

(Testimony of Samuel H. Palmer.)

—the Potter patent is out now, I guess. I do not think it is in accordance with the Potter patent. I think they are putting a lock notch in there like Roebling is. All of those concerns are using this high carbon content wire now, yes.

I have sold the half interest in my patent to my partner. The only transfer I made of it was in our bill of sale or in our partnership agreement. There is a sale in writing.

I have bought wire cloth from the defendant for a considerable period of time. As far as I know the double crimp screen has been known and manufactured for over 100 years. I think it was used in window guards and wire partitions, wire fences, and that sort of thing. The double crimp screen is very efficient. Referring to Plaintiffs' Exhibit 8 the part between [29] the indentations we call crimps. With regard to the part of the wire between the low point on the bottom, you can call it a short arch. We would call our screen an improved double crimp. Our screen is not a flat top type. I don't want to stick my neck out for that. It is poor. It is too flush. It is not as efficient as our screen, the flat top. I say our screen is practically flat on top, relatively flat but it is also rough, too.

With regard to the characterization of our crimp, it is a short crimp. We have a short crimp and it alternates with an elongated arch and then it continues with another short crimp and then another

(Testimony of Samuel H. Palmer.)
elongated arch. The arch is longer than the crimp. That is the difference. It is the combination of the two. That is what I claim to be the patentable thing in my device. One without the other wouldn't be any advantage. With regard to whether both were known long before, both the crimp and the arch, I never seen one before, never saw a screen like we are making. With regard to whether I now claim that it is a combination of the two that makes my device patentable, yes. It has been in the dictionary. I mean by that you got another question in there. You said the crimp and arch were known before, and I said it is in the dictionary. When I said the crimp and arch were known before, I am talking about the words.

I say that the Potter patent has a perfectly flat surface on one side. According to his patent it must be flat. The wire is straight and being straight, it is a perfectly flat surface, I would say, on one side. It has a right and wrong side to it the same as the other screens. The drawings on the first sheet of the Potter patent, Figure 1 in Plaintiffs' Exhibit 10, illustrate the appearance of the wire in the Potter patent. The wire [30] itself is not perfectly flat and I wouldn't say that it was. I would characterize those crimps in the Potter patent as having a sharp crimp at the intersection of every other wire. With regard to the significance of the word "sharp," it laps around—the inside of the crimp, the radius of the diameter of the wire, and it is brought up to a plane equal

(Testimony of Samuel H. Palmer.)

to the diameter of the wire that is woven across. The difference between the Potter patent and mine in that respect is that between those crimps I have a slight arch which enables me to make my crimp a little less deep than the Potter crimp. The Potter crimp is a sharper crimp than mine. The bottom part is round, but where they break off—it is the underneath part there where it is sharp. It is pretty sharp. The sharpness is at the bottom of the crimp where the wire breaks off to the level of the top of the screen. I mean the under side. It almost has a right angle bend there. That isn't the wearing side, but you realize when you bend a wire that sharp, that it must stretch the upper part of it, and a high carbon wire won't stretch.

My definition of the flat top type of screen is a screen that has a perfectly flat surface on one side. For example, like the Potter patent, it has a perfectly flat—you can put a ruler on there and there is no crimps projecting above the plane of the screen. The crimps are all eliminated. There is absolutely no roughness, no humps, no arch. A flat top screen is one where crimps are all on the opposite side, the lower side. The Potter screen is a long wearing screen because there is more metal there to wear, but in comparison with other screens using the same grade of wire, it is a long wearing screen. My screen is better than the Potter patent because my shallow arch gives a little indentation for the transverse wire to rest in. That principle

(Testimony of Samuel H. Palmer.)

was not well known in the art before that time. With [31] regard to whether there is a small indentation in the Galloway patent which supports the transverse wire, the Galloway patent shows a short crimp on both sides of the wire, if you notice, supporting the transverse wire on both sides. That is shown in Figures 2 and 3 of the Galloway patent. Figure 6 is a double crimp patent looking at the end of it. The principle of support for the transverse wire by means of indentation on both sides is shown in the Galloway patent.

The method of manufacture of a screen can determine whether or not the screen is a tight screen or a loose screen. Using my patent, a manufacturer could manufacture a loose screen or an ornament, but not for use. He could manufacture a screen that would shift but it wouldn't be any good. You can't manufacture a tight screen with a Potter patent because you bend the opposite wire. You will bend it and your wires will run out. In other words, one wire paralleling the other will gain or lose and you will have a distortion of the mesh if your crimp—if you crimp your wire too deep, you have got a loose screen; and if you crimp it too tight, you will have one that will run out, so you got to crimp it just right and that takes a mechanic to decide that when he sets the machine. That is the operator's job. It is possible to do it either way. A small sample of a screen is likely to be looser than it is with a complete screen. That

(Testimony of Samuel H. Palmer.)

is one reason why it's hard to tell from your samples down there. They are too small. My sample is a part of a screen. It is all right. I did not make it for that purpose. I do not claim that the defendant manufactures any of its smaller type screens such as my small sample. I haven't seen anything smaller than an inch and a half opening. As to the types of screens we make, we make the high carbon screen, we make low carbon, we make double crimp. I couldn't count the different openings for [32] you because we start out with a 7/16 in this particular weave and we can make it on any fraction of an inch and on out to six inches. That would be all of forty or fifty different types. We make them on the 32's.

With regard to Defendants' Exhibit A-24, I say, if that is manufactured by him, it is infringing on our patent. I have seen screens manufactured by him similar to A-24. On A-24 there is an arch between the indentations right here. It is not only in one wire, it is in this one and this one. This being a longer opening, this arch is more gradual, but you can see those. There is an arch there and there is an arch on the longer wire. It is not perfectly flat. You can see daylight through it. My understanding of an arch is just so it isn't straight. That is in the sense that I am using it in connection with my patent. With regard to whether I can see a uniformly curved elongated arch in that wire, this arch is the same as this one, and so on

(Testimony of Samuel H. Palmer.)
through. You only got one and your sample is too small.

With regard to the size openings I actually saw manufactured by him, I saw inch and three-quarters, inch and a half, two inches, two and a quarter. I saw two and three-quarters. It looked like that. You see that arch? That spot right there? I refer to that as an arch, and when you weave it up you have got a better one. If that wire was straight, you wouldn't change it, but that wire isn't straight. It isn't complete. I insist that you have here an arch. The shorter the arch is the more abrupt they are. I have been referring to Defendants' Exhibit A-24.

The smaller one that you are taking is no good, it is incomplete. A piece of loom waste. It isn't punched down, so that it is straight. I saw wires that look something like that. They had more arch, though. It is true that the smaller you get the opening, of necessity you get more nearly like an arch, unless [33] you reduce your wire in proportion, and the larger your opening, the flatter you can make it. With regard to your question if you make it very small, unless you intentionally or in your die had something which keeps it flat, it will automatically arch, won't it, my answer is no. Here you have a stripper plate, up here, to hold this down and this is straight. This punch comes down and breaks over here. You got a contact here, you can see the tool marks. Then you come down like this, push this up here, and that makes your arch. You said you struck on your punch, all

(Testimony of Samuel H. Palmer.)

these arches will be the same. When you use one of those punch presses and the press comes down upon the wire, if you don't have something to hold the wire between flat, it will not automatically arch, it will make a staple out of it. If your ends are fastened, the two ends would come out this way. As to the part in between, the pressure here and the pressure there would arch it automatically as in the middle.

The two and a half inch is partially arched but it would be more if it was put down where it belongs. I wouldn't say that Exhibit A-9 is much of an arch because it isn't complete. It isn't crimped deep enough. It isn't straight. The wire is bowed. If you put your required arch in here your wire will be straight because you will bend it down, you see. I mean this wire isn't complete for the purpose of making a screen. When the transverse wire is put through it would make a very poor screen. It isn't formed sufficient. Weaving would have an effect on the contour of the wire between the crimps if it is tight enough. It would bend it down here over this other wire. Merely weaving it would help in turning it into an arch. With regard to Defendants' Exhibit A-22, a three inch by one-half, I didn't see anything like that. There isn't any arch shown there. It is flat. Defendants' Exhibit A-25 shows an arch. [34]

My understanding of the words in my patent "uniformly curved" is that it means that when you

(Testimony of Samuel H. Palmer.)

pre-form your wire, the curves and the crimp should be uniform to make—I conceive an arch as being a continuous curve. If a portion of that curve is eliminated, and it is flat, it couldn't be both, so therefore, if it was partially arched, it would be an arch. With regard to the drawing in my patent, Plaintiff's Exhibit 1, Figure 2, that shows a continuous, progressive curved arch. There is no flat portion shown in the cut. We state in here that the arch is just to be sufficient to keep the wire from shifting. It is described as uniformly curved elongated arch.

In answer to questions by the Court, the witness testified:

The largest mesh which up to this time I have manufactured under my patent is six inches, I believe, six inch opening, and then we use one inch bars for that. The distance between the two transverse crosswise wires that cross at right angles to the arch would be six inches between them, or the arch would extend from one wire over the other one to the center. It would be thirteen inches to be exact. In a mesh that large the arch may flatten out a little at the top. It can't be over a little flat, anyway, if it is that. I wouldn't think that in any way affects the validity of the claims under my patent that it involves an arch in principle. The arch, the combination of the short crimp and the arch, is what the patent really is. If you have a slight arch the wire runs into resistance and prevents it from distortion, according to experience.

(Testimony of Samuel H. Palmer.)

In answer to questions by Mr. Catlett, the witness testified:

I can prove that the shallow arch in my patent offers resistance to shifting with those two samples and a pair of pliers or I will let you have the pliers and you prove it. I have a very small sample there, but if you want to get me a pair [35] of tongs, I will do it on the others in proportion to pliers. As you eliminate the arch, you of course lessen any support that is given to the transverse wires but you are supposed to increase the size of your wire to make up for that for a larger opening. It has more effect. It is more noticeable. It is there just the same but it is more noticeable where you use a larger wire, if you will note the specifications.

With regard to examples of the Potter patent, I would say that that one there Mr. Kaye has furnished, I don't know the number of it, is very close to the Potter patent, if not it. With regard to whether if it is manufactured close to the Potter paent it doesn't infringe on mine, I didn't pick out that one. It is that middle one down there, the big one, the center one in the second row. It is Defendants' Exhibit A-22. It is very similar to the Potter patent if you take a look at this cross section. It doesn't .infringe on mine. If you make them all like that it would be fine. It is not true that the larger types of screens Mr. Kaye makes do not infringe my patent because all I have seen in the

(Testimony of Samuel H. Palmer.)

field are not made like that. That is a sample. I doubt whether he made it. You can do it by setting your dies down.

With respect to the comparison between the Galloway patent and my patent, we have eliminated two bumps entirely and on that wearing side, I would say two will be sufficient. That will take care of it. We make our screens by forming them in a crimper to the proper form, and then we put them in the loom and weave them up, two operations, two distinct operations. I think everybody who manufactures has to do that, especially where you are using a hard wire. It has got to be preformed to the shape you are going to use it in. We make our crimps, on the large one, we make them in a crimper, one crimp at a time [36] and in the small ones we make two, three and four crimps at a time. We secure our arches with our die. Our die is properly made so that they are all uniform. Without bringing a press up here, it is pretty hard to explain to you how I form those arches. You have a set of dies cut out to the shape of the crimp you want for the female part of the die, and the male part of the die is cut out to fit that part. When it comes down, it presses the metal in between to the proper shape. I intentionally and consciously and artificially produce my arches. I do that with the die. We make our dies accordingly. The die is made of a piece of steel and it is carved out just right, so that when the

(Testimony of Samuel H. Palmer.)

wire passes through, the punch comes into the die and forms the wire, and we also have what we call a progressive die, where we straighten the wire and form it at the same time. On some we straighten the wire first before we start any operation. We have progressive dies on most of our stuff that does the straightening as it forms it. On some of them we punch the crimp and on some we run it through a gear crimper, a set of rolls with teeth properly spaced on these rolls. As they unfold the wire rolls through them and presses the crimp in there. Both methods produce the elongated curved arch if you make them right. You can make them both ways. The arch is put there by me intentionally. That is part of the patent. We put the arch in artificially. We do it with our die or rolls, it depends on what we are making. We are making and shaping the wire so that we can make a mesh. We run it through the rolls to give it its proper shape and if it is a larger wire, we run it through a punch press.

I am not familiar with the way in which Mr. Kaye makes his, but I can tell by the tool marks about how they are made. There is nothing elaborate about it, no. That is what I refer [37] to as the press type, when we punch two at a time on those smaller ones, like inch and a half and smaller, the arch forms in there from the pressure from the male die. If you have a press type the arch is naturally formed when you make the crimp, if you

(Testimony of Samuel H. Palmer.)

get it there and regulate the depth of that arch by your stripper plate. That must be—you can flatten it, you have got to have it straight. You can't have one arch way deep and the next one shallow. If you did you would have a very poor screen, wouldn't even stay together long enough to get it on the job. Whether, if you don't flatten it, you will have a natural arch depends on how you are running your wire off the reel. You wouldn't get a natural arch like he has in the No. 2 screen, because that there is about an eighth of an inch diameter. That is bent on an eighth of an inch radius, not greater than an eighth of an inch radius. You won't get a natural arch when you put in two crimps side by side unless it is pressed in. I would call a natural arch, if you took a coil of wire off a bundle and laid it down, but a 26-inch coil won't make an arch like that. When you press crimps in it it has the effect of making an arch between the crimps. That is part of your die.

Our screens are not sold by the ton. We sell them by the piece. The price depends on what kind of work we do on them. We have sold on a square foot basis, base price, and some of them have more work than others and formed arches. We have to charge extra for that.

In answer to questions by the Court, the witness stated:

We have fourteen employees, that includes the office girl. One person works in the office. I have

(Testimony of Samuel H. Palmer.)

a secretary and a sales manager, and my partner is assistant manager. He takes care of it when I am not there. Then we have a shop superintendent. I don't know the volume of our business in screens annually. [38] I don't know whether I want to tell that at this time or not. Do I have to tell it? I can give it to you in this way. Back in 1932, I kept a pretty accurate check on what screens was used in the territory, and thirty or forty thousand pounds would have done the deal, furnished it, and last year I would say it is 500 tons used. I have objection to saying how much quantity I produced, but I will swap with them. We have made 212 tons last year, 212 tons of screens. I don't wish to translate that into a dollar amount. We make other types of goods besides screens. We make some wire works, wire guards, wire partitions for school houses, a little jail work now and then.

You can use a high carbon manganese steel wire in a double crimp if it is annealed. We use a different wire for our double crimp than we do for our flat top. If you want to know, we use around a 200,000 pound test wire for our Flint screens, one made according to our patent, and around one hundred forty to sixty thousand pounds where we crimp it. That means the hardness of the wire, that is the tensile strength, per square inch, that determines the hardness. You can use the other wire in manganese on a large opening, but I mean

(Testimony of Samuel H. Palmer.)

by that a large opening in comparison with the size of the wire you use.

Redirect Examination

On redirect examination, the witness, Samuel H. Palmer, testified in answer to questions by Mr. LeSourd:

The words "spring steel" found in my patent at several points means a high carbon wire that is hard drawn. The temper is drawn into it. The drawing in of the temper is something distinct from the carbon content of the wire but it would be impossible to make a hard drawn wire that didn't fracture without a high carbon content. In testifying concerning the use by Roebling of a high carbon wire, that is a hard drawn wire, all [39] that we ever received from them has been a hard drawn wire. They make both, I believe. According to their advertising matter, that is used in manufacturing a screen according to the Potter patent. I have never seen one of Roebling's manufacture, but according to their catalog, they started making that screen similar to the Potter patent in 1947. I wouldn't want to say exactly how high a carbon content they use, but I would say it is around a 35. I do not know how hard drawn that wire would be, but I do know that it is softer than ours, what we use, for the simple reason we have some finer mesh we purchased from Roebling which was supposed to be a high carbon steel and it was a

(Testimony of Samuel H. Palmer.)

good deal softer than what we normally use in our screens or the fine mesh that we purchased from Mr. Kaye.

In answer to questions by the Court, the witness testified:

The expression 45. means 45 units of one per cent in volume of the metal is carbon. 45 units of one per cent rather than 45%. That's a little less than one half of one per cent is carbon.

In answer to questions by Mr. LeSourd, the witness testified:

When I used the words "arch" and "crimp" in my testimony, I aimed to use them pertaining to our patent in describing the construction or the forming of the wire that is used in our patent. We use a short crimp and alternate with a long crimp or arch on the opposite side of where the short crimps are and those alternate throughout the length of the wire. It would have been possible to use words such as bend and other words to describe this type of structure in the wire. A short bend and a long bend could be used, but I saw fit to use the word, crimp and arch, in describing it.

In answer to questions by the Court, the witness testified:

I am afraid I don't understand mathematical formulas [40] relating to angles or geometric equasions that state angles in relation to certain lines. You couldn't mathematically state the difference

(Testimony of Samuel H. Palmer.)

between a crimp and an arch because it changes in relation to the size of the wire and the opening that you are using. As to whether one could use reference to the size of the angle made between a base line and the outer line of the arch or crimp as distinguishing between the arch and crimp, expressing the angle in degrees, that the angle characteristically is larger in the case of a crimp than it would be in the case of the arch, and that as you begin to approach may be a 45 degree angle, the angle would tend to be that of a crimp, and as the angle diminished in size it would approach the typical size of an angle between the arch and the base line, that would be so on a particular size opening. You could figure it out that way.

In answer to questions by Mr. LeSourd, the witness testified:

In my testimony in using the word crimp I have reference to the short one of the two curvatures shown in the diagram of my patent, Plaintiff's Exhibit 1, Figure 2, which shows a curvature in one direction of the wire with a relatively short radius and the curvature of the same wire in the other direction with a relatively long radius. The arch would be the bend from the beginning of one short crimp to the other. The crimp is used to describe the bend that has a short radius and the word arch is used to describe the bend that has a long radius. In the double crimp screen concerning which I have testified, the radius of the curve in each direction

(Testimony of Samuel H. Palmer.)

would be the same. My invention is distinguishable from the double crimp in that feature.

In the Potter patent one side of the wire is perfectly flat. The part in Figure 1 marked B is the bottom of the short crimp. That is a curve. It differs in principle from my curve in that this one here has a radius of one and one half times the wire [41] from the outside and ours has about two thirds. Our short crimp is just about half as abrupt as it is in the Potter patent and the bar is taken out. It is barred by that slight arch. The curve there in the Potter patent is a crimp. It is all crimped. In other words, all the bends in there are crimped. Between the curves in the wire of the Potter patent, the character of the wire is a straight plane, straight wire. There was not known in the prior state of the art, prior to my invention, a combination of a short radius curve which I have described with the word, crimp, and a long radius curve which I have described with the word, arch.

With regard to the support of the transverse wire in the Galloway patent, it has extra dents there, or what we would call an extra crimp. The Galloway patent has an inside radius of the crimp equal to half the diameter of the wire. That is being used in the same screen and in the Palmer patent we have about less than three quarters of the diameter of the same wire radius. The radius is less than three quarters of the diameter and that varies. I am talking about the crimp in the Palmer patent. The

(Testimony of Samuel H. Palmer.)
arch has a much greater radius, a much greater radius than in the Galloway patent. With regard to the purpose of the two side crimps of the long portion of the wire in Figure 3 of the Galloway patent, in other words, crimp No. 9 in that figure, I think it was the intent of the inventor to securely lock that crosswire that you can get the end view of in place. You can take crimp No. 6, that is the bottom crimp between 7 and 9. It is shoved down to throw more metal down below in order to lock that wire in position. I think that was the inventor's intention. That would take a rather soft wire to do that. When I said to lock that wire I am talking about the one with the cross wire, No. 8 on this diagram. No. 6 crimp had to be shoved up there in order [42] to get that indent to bring it down around No. 8, so the depressions between No. 6 and No. 7 were formed to lock No. 8 in place. Looking toward the top of Figure 3 to the two humps or crimps, or whatever you call them, No. 9, with wire No. 5 between them, I would say that these two crimps No. 9, these two humps, together with the depression No. 3, were probably formed to enclose wire No. 5. That particular screen is made exactly like our extra type screen only they have shallowed one crimp, shallowed every other crimp you might say. In comparison with the screen that we make, the Palmer patent, you could not use a spring steel wire, not make that satisfactory. We punch it too bad. It would fracture. If it didn't

(Testimony of Samuel H. Palmer.)

break in the fabricating, it would break down with fatigue in the vibrating machine in a very short time. In the Galloway patent they have used an extra crimp in order to prevent the transverse wire from shifting. In the Palmer patent, by using all higher carbon spring steel, we can hold that with an arch and eliminate those abrupt crimps which has a tendency to weaken the wire. Looking at Figure 3 of the Galloway patent and comparing it with the Palmer patent the arch in the Palmer patent extends in a relative position from No. 3 to No. 3 as those numbers are contained in Figure 3 of the Galloway patent. The corresponding numbers in Figure 2 of the Palmer patent may be identified as 7 and 7. In the Palmer patent, referring to Figure 2 thereof, the point which is marked No. 10 coincides in that screen with the point which is marked No. 3 in Figure 3 of the Galloway patent. Figure 7 on Figure 2 of the Palmer patent refers to the crosswire, the one that runs right angle to the one you are looking at. You are looking at the end of it. No. 7 is the transverse wire that runs at right angles. On Figure 2 of the Palmer patent there is a point which is not marked with a number but is similar in [43] position to No. 10 that is marked and it is directly under No. 7 on the far left side. The position of the arch between the No. 10 in Figure 2 of the Palmer patent and the point you have just described which is equivalent to No. 10 on the far left side corresponds in general

(Testimony of Samuel H. Palmer.)

with the space in Figure 3 of the Galloway patent between the two No. 3's.

When I testified on cross-examination that the rod identified as Defendants' Exhibit A-13 was not completely manufactured, I meant that the press wasn't set down sufficient. The indentation is too shallow. There is something about the shape of this rod. The wire would come out straighter if it was pressed down where it should be in the dies. This rod is curved. It should be straight, fairly straight. In this form it could not be successfully woven to a screen. When I say it isn't straight I mean it has got a natural bow in it, from one end to the other. If that were fully pressed or manufactured and if you allowed this little arch to come in each one of these, it would straighten it out. The stripper was either too high or else the punch didn't come down far enough to properly form it. The same defects are present in Exhibit A-9.

In answer to questions by Mr. Catlett, the witness testified:

Referring to Exhibit A-9, if that were straightened out you would have too shallow a crimp to make a screen. Straightening it out would have no effect on the arches in its present form. Referring to A-13 which is slightly bowed, with regard to whether if it were straightened out that would have any material effect on the arch, that depends on how you straightened it. It shouldn't have if you straightened it out. If you straightened it in

(Testimony of Samuel H. Palmer.)

these crimps to get your curve out it wouldn't have any effect on the arches. You might also ask me to remake the screen.

In answer to questions by Mr. LeSourd, the witness testified:

When, with reference to these two exhibits I said as to A-9 that if you straightened it out it would have no effect on the arches, I was thinking of just making the wires straight. That wire could not be made into a screen satisfactorily because the crimps wouldn't be deep enough. The same thing is true of Defendants' Exhibit A-13. That would have to be woven up into a screen that size down there. You could see that wouldn't go into it.

In answer to questions by Mr. Catlett, the witness testified:

The importance, so far as the charcater of the arch is concerned, of my saying that it couldn't actually be used in the screen, is that it wouldn't hold its shape. It isn't properly crimped. That has an effect on the arches because this one here should have more arch here or more crimp here. It is broken down at this point. If you don't want to put the arch in there, make your short crimp—break it a little more. You would run into trouble if this were a straight wire with the same arches you have here.

(Testimony of Samuel H. Palmer.)

In answer to questions by Mr. LeSourd, the witness testified:

With regard to my testimony concerning the Galloway patent, that the arch in the Palmer patent in general covered the same position in the screen as would be covered in the Galloway Figure 3 from No. 3 to No. 3, the arch of the Palmer patent eliminates two humps of the Galloway patent and in most cases you would discount the third one, but I wouldn't know how much. I mean by discounting the third one it would be less abrupt, depending upon the size of the opening of the mesh.

Concerning the method of manufacturing these screens and the so-called natural arch, it is possible in making these screens to make an arch higher or lower by adjusting your die or rolls. Also it is possible by adjusting your die or rolls [45] to take the arch out altogether.

Recross-Examination

On recross-examination the witness, Samuel H. Palmer, testified in answer to questions by Mr. Catlett:

The hump in the center, No. 7 in Figure 3 of the Galloway patent, furnishes more support to the transverse wire, which is No. 8, than my patent. The arch which my patent contains has an advantage over that. My patent has an advantage over the Galloway because it has more wearing surface. I consider that an advantage in that it will last

(Testimony of Samuel H. Palmer.)

that much longer. The sharp little humps don't have so much surface and they cut off almost immediately. The one you can eliminate most of the humps on, naturally will last longer, because you have full diameter of the wire to work on. My type of screen in the Palmer patent wears out more quickly than the Potter patent type but it is much more efficient. I think my patent says something about a combination of a short radius curve or a long radius curve. My patent continually uses the phrase, "uniformly curved, elongated arches" and "gradually formed shallow crimps connecting the arches" also "gradual longitudinal arches." I presume these are the claims in my patent. There is such a thing as oil tempered spring steel wire. That is all the same as—it is the same analysis as the hard drawn wire that we are using. Oil tempered wire can be used also. It is heat treated or the temper is put in by heat treatment and the hard drawn is drawn into the wire, the temper is. I can use the oil tempered wire also. Hardness alone determines the wearing quality of the wire on a screen. Hardness is the biggest quality. You have got to have a little manganese with it and that naturally goes along with it. You don't see any high carbon wire without it. You can have a screen that is too hard. We do have defective wire sometimes. It gets [46] too hard. You have to reject it.

(Testimony of Samuel H. Palmer.)

Redirect Examination

On redirect examination the witness, Samuel H. Palmer, testified in answer to questions by Mr. LeSourd:

In actual use the life of a screen depends in some effect on bits of material getting in between the intersecting wires. Not exactly the life of the screen, but it cuts down the efficiency if they blind out. What we mean by blinding out, that a low carbon wire—rocks will stick into the mesh and blind the holes out, and the contractor makes his money with what goes through the holes, and not what passes over the top of the screen. By blinding the holes out I mean it closes up the screen. When rocks get in between the wires they do not affect the wearing of the wires so much, but they have a tendency to distort the mesh. That is why we use a high carbon wire, to prevent that as much as possible. There is a distinction between the Palmer screen and the Potter screen in that respect. That is one reason why we couldn't make the Potter screen and get away with it, the rocks would get in and wedge and distort the mesh. That was one of the reasons. That is not true of the Palmer screen if it is properly made. They can be made bad, too. I don't know that rocks would get in any more readily in the Potter screen than the Palmer screen, but when they get in there, they do more damage, because there is nothing there—there is no resistance there to hold the wire in place and it will

(Testimony of Samuel H. Palmer.)

shift out of shape, the same as I demonstrated with the pliers.

Concerning the smallness of the samples on which I have demonstrated the shifting, the reason I made those small samples is so you could do it with an ordinary pair of pliers. If you want to get me a pair of blacksmith tongs, I will shift all the flat ones with the straight wires. Under the pressures which [47] the screens have in actual use would be sufficient to cause shifting. It is the weight on them and the excessive vibrations, it will cause a mesh distortion if your screen is not properly made. If you make them too flat, you will get the trouble all the time.

(At 5:05 o'clock p.m., Tuesday, October 18, 1949, proceedings recessed until 10:00 o'clock a.m., Wednesday, October 19, 1949.)

October 19, 1949, 10:00 o'Clock A.M.

Recross-Examination

On recross-examination, the witness, Samuel H. Palmer, testified:

Mr. Kaye ceased to purchase from me in 1944 and started making screens himself. I saw his products at that time and was aware how they were made. I didn't notify Mr. Kaye that I thought he was infringing until 1948 because I didn't think he was going to cut much ice with us down there, but then he put a man in our territory and I thought we better stop him if possible. When I had Mr. Bowie

(Testimony of Samuel H. Palmer.)

get for me one of the screens manufactured by them, I instructed him to get an inch and a half screen. I believe that is one of the smallest Mr. Kaye makes. I instructed him to get a duplicate of something I believe was manufactured in 1947, prior to the time when I gave Mr. Kaye any notice. I have brought one of my screens of one and one half inch for comparison. I have brought one sample of our larger screens and that was worn down to show the difference. With the exception of a worn screen I haven't brought any of my larger screens to exhibit. I didn't think it would be necessary. They are all made on the same plan. I differ with you on whether as you extend the arch it flattens out necessarily and doesn't give any support [48] whatever to my transverse wires. That isn't the reason why I didn't bring any larger ones. I knew Mr. Kaye manufactured a considerable range of the larger sizes. As to why I didn't bring my larger sizes to compare with his, I just didn't do it. I can get one for you if you wish.

The double crimp, as I testified, preceded my patent. The double crimp is made by running it through a gear crimper. The wires or rods are run through a gear crimper and in most cases the warp wires are crimped shallower than the cross wires. They are woven together in a loom. I wouldn't say that there are three methods of making double crimp, three types of double crimps in the gravel screens, if that is all we are talking about. If we are going into the industrial spark

(Testimony of Samuel H. Palmer.)

arrester cloth, that is made of a wire with a double crimp, and that is crimped by the machine that is weaving it, and that wire is made for that particular purpose. I don't know what you mean by a regular double crimp, then your so-called extension crimp and then your high low crimp in the way they are described. The double crimp screen was always referred to as the over and under basket weave. We have a crimp which has an offset in it, which may be called a high low crimp. If the intermediate crimp is that what we would call the extra crimp, I know it. That is the same as the double crimp process only you leave out every other wire. You move it up and you have one extra crimp in between your two cross wires and it has the same—it don't have a right and wrong side to the screen. You have crimps, a short crimp. I don't know that you have arches also. They are about as sharp as a saw tooth, the teeth that make them. I wouldn't call it an arch.

Redirect Examination

On redirect examination the witness, Samuel H. Palmer, testified in answer to questions by Mr. LeSourd: [49]

Plaintiffs' Exhibit 20 is a partnership agreement between myself and Mr. White. It is the original. Mr. White is my—C. A. White is the one mentioned in this case with me, and he is my partner doing business as the Western Fence & Wire Works. He is the other plaintiff in this case. The partnership

(Testimony of Samuel H. Palmer.)

agreement contains reference to the patents that are here in controversy, the Palmer patents. The screen patents are mentioned in here in the partnership agreement and it is the only one that we have, and it is receipted in full, paid in full, so I would say that it is covered. That is the intent of it anyway. I own the patent. [50]

By the provisions of Paragraph 5 of the partnership agreement on page 2 and also the schedule attached to the document, page 2 of the schedule at the end of the document, I intended to transfer the patent rights which I have in this suit to the partnership. It is the same patent and it was transferred along with the other assets and as a part of the assets. On page 2 of the schedule in this agreement it describes flint screen patents. By that description my intention was to transfer the patents along with the other assets to this partnership, to transfer the patents that I held on manufacturing of Flint screens, or sold under the name of Flint screens, which was the Palmer patent. By Palmer patent, I mean the patent on which I am suing in this case, which is here identified as Plaintiffs' Exhibit 1.

(Plaintiffs' Exhibit 20 received in evidence.)

I have made no other transfer of my rights in this patent, Plaintiffs' Exhibit 1, other than by Plaintiffs' Exhibit 20.

(At this point, Samuel H. Palmer was excused.)

FRANK E. ESSLEY

called as a witness by and on behalf of plaintiffs, having been first duly sworn, was examined and testified as follows:

Direct Examination

In answer to questions by Mr. LeSourd, the witness testified:

My name is Frank E. Essley. My age is forty-nine. My residence is Portland, Oregon. My present occupation is sales manager for the Western Fence & Wire Works. My experience in the wire products industry has been that I started to work for [51] John A. Roebling's Sons Company of California, which is a branch of the parent company, John A. Roebling's Sons Company of Trenton, New Jersey, in 1920. I continued to work for John A. Roebling's until 1945, at which time I quit Roebling's and went to work for the Western Fence & Wire Works. I started out with John A. Roebling's Sons Company as a warehouseman for them in 1920 and worked in the warehouse for between four and five years. I was then transferred to the office as a stock clerk. I was stock clerk for some little time, I imagine about three years, and was made chief clerk, which position I held until 1941 when I became a salesman traveling on the road for them. In my work for Roebling as stock clerk and as chief clerk, I had occasion to become familiar with wire screens. Wire screens are one of the products manufactured and sold by Roebling. When

(Testimony of Frank E. Essley.)

I became a salesman for Roebling in 1941, I handled wire rope, insulated wire, copper wire, and woven wire fabrics which included sand and gravel screens. Referring to Plaintiffs' Exhibit 17, and particularly to the brown covered catalog which is marked with pencil on the cover, 1935, that was the complete catalog for the woven wire fabrics division of John A. Roebling's and this is the catalog that we used while I was salesman for that company. I was salesman for Roebling from 1941 through 1945, and I used this same catalog during that period. This catalog was also in use during the time prior to 1941 when I was chief clerk at Roebling's.

I was familiar with all of the products sold by Roebling in the woven wire screen division. If there was a new product come out and was for sale, we would immediately get a bulletin describing the product. I visited the Roebling factory for an educational—well, it was an educational trip. We were to see all the different products manufactured and to gain knowledge of all the products. I know whether or not this catalog, the brown covered catalog that we are referring to, contained all of the products put out by Roebling in the woven wire screen division during that period. The basis for my statement that I have such knowledge is that you will notice that this is a loose leaf catalog, and if there was any new product come out, we immediately got a bulletin on it and then a descriptive sheet to be inserted in this cata-

(Testimony of Frank E. Essley.)

log. I know that I got a descriptive sheet as to all their woven wire products because it was the general practice of Roebling's to distribute all of their material all over the United States. To the best of my knowledge, this catalog contains all of the woven wire products put out by Roebling during the period concerning which I am testifying.

I sold Roebling's products in the territory from Salem, Oregon, south to the California border, and from Prineville south to Lakeview, and from that line west to the coast. I sold and offered for sale all of the products listed in the brown covered catalog, Plaintiffs' Exhibit 17. That includes woven wire screens for use in the gravel industry.

In the course of my work as a salesman, I had occasion to visit the plants of users of such gravel screens. Every sand and gravel plant in the territory was a potential user of a number of products manufactured by Roebling, including wire rope, insulated wire fittings, and wire cloth. It was a part of my work to visit such plants, some of the plants were called upon regularly and some whenever I happened to be in the immediate or adjacent territory. In the course of that work I had occasion to observe gravel screens, classifier screens, in operation. While I was with Roebling's, Roebling sold gravel screens of the Western Fence & Wire, Flint screens. These screens were made under the Palmer patent, introduced here as Plaintiffs' Exhibit 1. Roebling purchased them from Western

(Testimony of Frank E. Essley.)

Fence & Wire Works on requisition. [53] Roebling purchased Palmer screens because in selling screens delivery is one of the big items and, the factory being so far away, it wasn't practical to order from Roebling's and wait three or four or five weeks for delivery. As a usual thing, when they want a screen they want it immediately, or within a day or two, and the service we got from the factory was such that we couldn't sell the Roebling screens, therefore we sold the Flint screens. We got very excellent service from the Flint screens, that is, the customers were well satisfied with them and we saw no reason for ordering the Roebling screens from Trenton. By Flint screens I mean the Palmer patent, in other words, a screen made in accordance with Plaintiffs' Exhibit 1 in this proceeding. The screens bought by Roebling from Western Fence & Wire were similar to Plaintiffs' Exhibit 3, which I have examined.

Most gravel screens are ordered on special order, very few carried in stock, owing to the changes of specifications on any job, any rock production job, and they don't know from one day to another as a usual thing whether the specifications are going to be changed. Sometimes they start out using one size screen and the inspectors will insist on them changing to either a larger or smaller opening.

Since I went with Western Fence & Wire, I have been connected with the screen division and have been selling and servicing screens all over the ter-

(Testimony of Frank E. Essley.)

ritory that we cover. In the course of my work with Roebling's and Western Fence & Wire, I have become familiar with the requirements of users of classifier screens. I have had occasion in my work with Western Fence & Wire to observe such screens in use. When I got into a rock production job or gravel plant, it is my practice to go up and inspect the screens, see how they are working, and see how the wear is on them, and make a general inspection of screens in use [54] and screens that have been used, in other words, worn out screens. I have visited hundreds of plants. Roebling got Palmer screens and sold them from 1936 to the present time. In the course of my experience with Roebling and Western Fence & Wire, I have had occasion to become familiar with the various types of gravel screens that are produced and used. I have become familiar with the various patents under which these gravel screens are made. I have become familiar with the advantages and disadvantages of each type of screen in actual use. I have seen other screens similar to Plaintiffs' Exhibit 2 in various plants in the northwest. These other screens were similar to Plaintiffs' Exhibit 2 in that they have the shallow crimp and arch as shown on this screen. I have seen screens which were marked as being the product of the defendants in this case in users' plants which were similar to Plaintiffs' Exhibit 2, and the similarity was as I have stated. I would say that I have seen several hundred screens of the defendants that were similar to this exhibit. They

(Testimony of Frank E. Essley.)

were not all of the same mesh and wire size, various sizes of wire and various size openings. I have seen these screens in plants in Oregon and Washington, Idaho, Montana. There is a demand for the Palmer type screen with the arch as disclosed in Plaintiffs' Exhibit 1. I have become familiar with how that screen acts in actual operation. It holds the meshes or the openings to a very close tolerance. The wires do not shift in the screen as in some of the other manufacturers, that is, of different types than the Palmer screen. The close tolerance is an important factor in the use of the screen because in the grading of aggregate, the inspectors hold the contractor to a very close tolerance, and this is set up by whichever—whether it is the city that they are doing the work for, the city or the state or the United States, they have their [55] specifications that state how much tolerance they will allow on the grading of the aggregate.

In the course of my work, I have had occasion to observe screens made under the Potter patent in operation. There was shifting of wires, and in fact, the contractor ceased using them although he had them on hand, and bought Flint screens. Our service was so much superior to theirs that they continued to use Flint screens throughout the life of the job. I am speaking of the Dorena Dam job located at Cottage Grove, Oregon, about 20 miles south of Eugene, Oregon. I have had occasion to become familiar with how the double crimp screen wears in actual use. The high points of the screen

(Testimony of Frank E. Essley.)

wear off very rapidly and they lose the tension between the wires. When those are worn off, the screen goes to pieces. On the average job, I would say that the screen made under the Palmer patent wears 50 to 100 per cent longer than the double crimp. Plaintiffs' Exhibit 7 is the type of screen to which I referred when I mentioned a screen made under the Potter patent, and Plaintiffs' Exhibit 8 is the type of screen to which I was referring when I mentioned the double crimp screen.

On Plaintiffs' Exhibit 2 there is one side of the screen that is normally used as the wearing surface in actual use. That is the side that the wires are arched on. This is the rough side. The smooth side is the wearing side which is normally used in the gravel industry for the wearing surface. The other side is the lower side, or the crimp side, the rough side. I would call the smooth side the upper side of the screen. The single wire of Exhibit 2 has crimps. The part I would call a crimp is the convex—no, the concave side. That part of the wire which is concave upwards toward the smooth part of the screen is the part I would call a crimp. The crimp, I would say, [56] would be about 1/8 the circumference of the wire. I characterize that crimp as shallow because the crimp is not near the depth of the diameter of one of the wires. It is shallow with relationship to the diameter of the wire. The wire between the crimps is arched. It is a convex arch, convex upwards towards the

(Testimony of Frank E. Essley.)

smooth side. The arch starts where the concave crimp stops, and it is arched from that point across this wire and to the next crimp, to the concave portion of the next crimp.

In Plaintiffs' Exhibit No. 7, which has been identified as a Potter type screen, the shape of a wire is flat with a cup in the different intervals for the wires that intersect. The cups are all in the same direction. The cups are the same depth as the diameter of the wire, making a smooth surface or a smooth plane across the whole screen. Referring to the points on Plaintiffs' Exhibit 7 where the wire departs from a straight line and drops into what I have designated as a cup, and then again to the point where the wire again commences a straight line on the other side of the same cup, the relationship of those two points with the top of the intersecting wire that rests within the cup is that they are on a straight plane. The wire itself, I would say, would be level, straight across. The two points that I mentioned, at the top of each side of the cup, are the same height as the top of the intersecting wire that rests in the cup. The sides of the cup rise steeply, almost directly up, to this point level with the top of the intersecting wire.

In both screens, Plaintiffs' Exhibit 2 and Plaintiffs' Exhibit 7, it is necessary for the wires to go up as much as they go down, because if you didn't, you couldn't get the intersecting wires over it. In

(Testimony of Frank E. Essley.)

other words, if it wasn't twice the diameter of the two wires—or one wire, assuming the two wires are the same diameter—if you didn't, you couldn't weave it. [57] It wouldn't go in. The intersecting wire wouldn't go in there at all. In each screen, it is necessary for the wire in order to cross the intersecting wire to go just as high in order to cross it as it goes low in the next stage to cross the next intersecting wire.

With regard to the difference in the manner by which the wire in the Palmer screen attains the necessary height or depth to cross the intersecting wire, and the manner in which the Potter screen, Plaintiffs' Exhibit 7, attains the same height or depth, on the Potter screen, Plaintiffs' Exhibit 7, the cups are deep enough, are as deep as the diameter of the wire. In other words, the intersecting wire fits down in the cup without any protrusion above, so that the wire comes immediately up to the level necessary to cross the intersecting wire. On Plaintiffs' Exhibit 2, owing to the fact that you have a shallow crimp here, you either have to have an arch across the intersecting wire here or it would have to be a crimp, as in the double crimp wire to cross this intersecting wire. It has to be twice the diameter of these wires. Where this is a shallow crimp, the wire has to be bowed to go across the intersecting wire. In Plaintiffs' Exhibit 7, the cup coming immediately up to the level of the intersecting wire, no arch is necessary. The difference between Plaintiff's Exhibit 2 and Plain-

(Testimony of Frank E. Essley.)

tiffs' Exhibit 7 with respect to the manner in which the wire attains a height sufficient to cross the next intersecting wire is that in Exhibit 7, which is the Potter patent, the cups are deep enough to take—well, the depth of it is the diameter of the intersecting wire. In other words, it is deep enough that the wire can fit in there and still the wire be on a straight line with that intersecting wire. That differs from Plaintiffs' Exhibit 2 in that the shallow crimp in this Exhibit No. 2, the [58] crimp is so shallow that there has to be an arch for the intersecting wire to go under, and the arch has to be high enough to compensate for the shallow crimp on the lower side of the screen. In other words, it has to be, to get an even plane, a smooth side on the screen, the wire has to be arched high enough so the intersecting wire can fit underneath it. It would not be possible to have a straight wire between the cups as I have testified to, as is shown by Exhibit 7, the Potter type patent, and at the same time have crimps such as those shown in Exhibit 2, because the cups in Exhibit 7 are deep enough to take the intersecting wire, and if you put an arch in that, the wire would be loose. There would be a space between. It would not be possible to have a shallow crimp as shown by Exhibit 2 and at the same time have a straight wire across as shown by Exhibit 7. Referring to Plaintiffs' Exhibit 7, if the cups weren't so deep as they are, you couldn't have this straight plane across here, because this intersecting wire has to fit underneath

(Testimony of Frank E. Essley.)

this one, and if this was a shallower crimp, there would have to be an arch or another crimp put in here. Looking at Plaintiffs' Exhibit 2 with the crimps it has, it would not be possible to have the wires between the crimps flat and still weave the screen, for the reason that it has got—the crimp is shallow and there has to be space provided through an arch or crimp for the intersecting wire to fit in. If you have that same crimp and the wire went straight across, the intersecting wire would not get through. If you have cups in your wire as shown by Exhibit 7, the Potter type exhibit, you could not at the same time in connection therewith have an arch with those cups, the arch being like that shown in Exhibit 2, because the cups in Exhibit 7 are deep enough so you have a straight plane across the screen in both directions, and if you put an arch in [59] between, they wouldn't even fit in the cups of the next. It would be up above and the screen would be so loose it would just fall to pieces.

Referring to Defendants' Exhibit A-15, the opening which is left between a plane crossing the top of the crimps, rather than across the bottom of the crimps in the screen and the top of the arch is less than 3/8 of an inch. The size of the wire is 7/16, and it would not go through the opening of less than 3/8 of an inch. Referring to Defendants' Exhibit A-13 and Defendants' Exhibit A-16, both described as bars or wires 1½ by 3/8, if I cross the

(Testimony of Frank E. Essley.)

arch of one wire across the crimp of the other, and take this card and place it across the top of the arches on either side of the cross wire, it is not possible for the card to touch the tops of both of the arches simultaneously on each side of the cross wire. The cross wire extends higher than the plane of the tops of the two arches in the other wire. Laying these two wires, Defendants' Exhibit A-13 and Defendants' Exhibit A-16 together, the crimps and arches of these two wires do not exactly correspond with each other. The space between the bottom of the crimp of one wire and the bottom of the next wire is a different length than the space between the bottom of the crimp of the other wire and the bottom of the next crimp of such other wire. Taking Plaintiffs' Exhibit 2 and laying this card across the upper side or flatter side of that screen from one arch to the next, it is possible to touch both arches simultaneously, and at the same time touch the top of the arch of the intersecting wire. They are all on the same plane.

I take this notched card and apply it to Plaintiffs' Exhibit 3, inserting it, and with the pencil draw on the card the profile or shape of the arch of Plaintiffs' Exhibit 3. I insert this notched card in the screen, Plaintiffs' Exhibit 3, [60] and trace along the wire of the arch of that exhibit by black pencil. Taking a red pencil I do likewise on the same card with Plaintiffs' Exhibit 2. The two arches of those two screens, plaintiffs' Exhibits 2 and 3, are substantially uniform in curvature.

(Testimony of Frank E. Essley.)

(Card marked Plaintiffs' Exhibit 21 for identification.)

With reference to the curvature of the arch in these two screens, Plaintiffs' Exhibits 2 and 3, as observed by me and demonstrated by my drawing on Plaintiffs' Exhibit 21, the arch of Plaintiffs' Exhibit 2 which I have drawn in red pencil is slightly more of an arch than Plaintiffs' Exhibit 3 which I have drawn in black pencil. The two arches are substantially similar.

(Plaintiffs' Exhibit 21 received in evidence.)

I now take Plaintiffs' Exhibit 21 and apply it to Plaintiffs Exhibit 7 and trace in green pencil the profile of the space between the two cups. I write on Plaintiffs' Exhibit 21 the word, Exhibit 7, with a little arrow pointing to the green line. I write also, Exhibit 2, with an arrow to the red line, and, Exhibit 3, with an arrow to the black line.

In Plaintiffs' Exhibit 2 the arches in that screen are of uniform curvature. From my observation of the screens in use, I know that it is necessary to the successful operation of a screen containing shallow crimps and arches of the character shown in Exhibit 2 that the arches be uniform with each other, because if the arches weren't uniform, if one was higher than the other, the higher wire would not have any tension on the cross wire and that would have a tendency to loosen up; and also where the wire was humped up would make a bigger open-

(Testimony of Frank E. Essley.)

ning for gravel or rock to slide through at an angle and you would get off size material through your screen. To state whether or not [61] a wire screen is made of high carbon spring steel, I would have to test the wires.

Cross-Examination

The witness, Frank E. Essley, testified on cross-examination in answer to questions by Mr. Catlett:

My position with the Western Fence and Wire Company is sales manager. As sales manager I am in competition with the product of the defendant. We both sell in the Northwest and the competition is pretty sharp. As sales manager it is generally my duty and policy to press the advantages of the Flint screens as against the screens of the defendant. When I was with Roebling I had nothing to do with designing any screens, nor manufacturing any screens. My work was as a clerk and salesman. I was with Roebling during the war period, serving in general the Portland territory. Roebling has an office in Seattle and in California. During that period of time when it was difficult to get the product out to the West Coast it was Roebling's policy to buy screens from manufacturers on the West Coast. I do not know whether Roebling bought for the Washington market from the defendant, nor whether they bought from Abbey Sherer for the California market. They could have done so.

(Testimony of Frank E. Essley.)

It isn't customary for manufacturers to keep on hand a stock of wire screens. They are generally manufactured to order. According to the market Roebling sells different products in the East than in the West. Roebling also manufactures specialties. Roebling could manufacture specialties on order for the eastern market without its getting in the catalog. I visited the Roebling factory in November, 1940. That is the only time I have been there. I was there six weeks. That was an educational trip. At that time I was chief clerk. [62]

In going around to visit some of these gravel plants I have seen some of the defendant's screens in sizes all the way from the finest to the four inch, I believe, is the largest. I couldn't answer what is the smallest screen the defendant makes. I do not know whether the defendant makes small screens in the flat-top type. Not to my knowledge does the defendant manufacture screens under an inch and a half. The only screen that the plaintiff has produced here except the worn one and the screen which we are making all these drawings and comparisons with is an inch and a half screen. I made no comparison or drawing with any screen of the defendant larger than an inch and a half. If I had done so my drawings would have shown a similar arch in those larger screens.

(At 12:05 o'clock p.m., Wednesday, October 19, 1949, proceedings recessed until 1:45 o'clock p.m., Wednesday, October 19, 1949.)

(Testimony of Frank E. Essley.)

October 19, 1949, 1:45 o'Clock P.M.

On cross-examination, the witness Frank E. Essley, further testified; in answer to questions by Mr. Catlett:

During the period I was with Roebling, Roebling manufactured a screen of their own. This screen was the so-called basket-weave, and the double crimp, and their trade name for another one was the high low crimp. There were three types of crimp. You have the high low crimp wire there on the floor, for instance. I didn't mean high low crimp, I meant the basket weave or the double crimp. That is plaintiffs' Exhibit No. 8. The high low crimp differs from that in that it comes exactly straight across. It comes across in a straight line. Then there is a raise up half the diameter of the intersecting wire, and hence [63] on a plane to the next intersecting wire and the crimp is downward instead of upward. I can show you a cut of that in the catalog, if you want to see it. On Page 37, in Plaintiffs' Exhibit 17, the Roebling catalog, is an example of a high low crimp. That is the only high low type I am familiar with. There could be another one. The other types of double crimp are the three that I named. The third is called the extra crimp with the basket weave. The basket weave or the double crimp is illustrated by Plaintiffs' Exhibit 8. The high low crimp is illustrated by a drawing on Page 37 of Plaintiffs' Exhibit 17. The third kind is the intermediate crimp, as shown on

(Testimony of Frank E. Essley.)

Page 18 of the Roebling catalog. These are all the screens to my knowledge that Roebling made for sand and gravel screens. They make some different screens now. They now make the flat top screen.

The period during which I have seen a number of the defendants' screens on my trips is since the time that I have been on the road for the Western Fence and Wire Works, or since 1945. I did not testify that all that I saw were similar to Plaintiffs' Exhibit 2. I saw screens that they manufactured smaller than an inch and a half opening with the so-called basket weave. The basket weave has nothing to do with the Palmer patent to my knowledge. I saw some smaller ones that were of the basket weave or double crimp. Also I saw screens similar to Exhibit No. 2. All the other screens I saw were similar to Exhibit 2. I do not mean the same size opening. I saw openings of all sizes. I mean to say that the larger ones that I saw had similar arches to this one. It is a fact that as you increase the size of the opening you must of necessity extend the length of the arches. I saw screens like Exhibit A-22. Referring to A-22, I call that an arch between the two crimps. I understand the word "arch" to mean where there is a contour on the wire over the cross or the shot [64] wire. It is not true that in my definition of an arch any wire that crosses another wire does so by means of an arch. An arch is when a wire is manufactured in an arc. It can be a long one, a short arch or any-

(Testimony of Frank E. Essley.)

thing, just so it is arched. An arch isn't flat. The wire between the two crimps on Defendants' Exhibit A-22 has a slight arch in it. My meaning is approximately that it isn't perfectly flat. An arch can have a progressively inclined surface, but there is all different contours of arcs. The meaning of the word "arch" indicates to a slight degree that it is progressively curved. I don't see that that is a flat surface. I say that is an arch. If Mr. Palmer said that this particular one did not infringe his patent, I would disagree. I believe it does. With regard to the similarity between Defendants' Exhibit A-22 and Plaintiffs' Exhibit 2, Defendants' Exhibit A-22 has a slight arch. It doesn't have as much arch as Exhibit 2. The word "similar" in my mind means the contour of the arch. There is a more pronounced arch in Exhibit 2 than in Exhibit A-22. It is not similar, but it is still an arch. The arches wouldn't be exactly similar. When I saw these screens on my trips nobody is able by looking at a screen to identify it and tell who manufactured it. I identified these screens by looking at the shipping tag that is on them. I could only identify them by means of the shipping tags. There would be no way of knowing who put on the shipping tag. At times screen manufacturers buy screens from other people and sell them. Roebling's have done that—we have done it. So the fact that there is a shipping tag on it doesn't necessarily indicate who manufactured it.

Right offhand, I have no way of telling how many

(Testimony of Frank E. Essley.)
screens of the one and a half inch size I saw or how many other different sizes.

The wire size has a very definite bearing on the life [65] of a screen. I think I can determine the absolute uniformity of a screen by merely looking at it. The variations in every arch and crimp would be so slight that they wouldn't be distinguishable by the naked eye. You could have some variation without being able to distinguish it by the naked eye. As to whether the lack of uniformity would necessarily mean that a screen was defective, it is according to how much variation there was in the arches, or the crimps. It would depend on the extent of the lack of uniformity.

In Plaintiffs' Exhibit 7, the Potter patent, I would term those crimps as deep cuts. They slope abruptly from the bottom of the crimp to the flat part of the wires as crosses between crimps. Comparing them with Plaintiffs' Exhibit 3, the Palmer patent, they are very much more abrupt than the crimps in the Palmer patent. Referring to Defendant's Exhibit A-23, in such a small sample it is hard to say whether the arches are absolutely uniform, but I think they are very uniform. There isn't enough wire—this sample isn't big enough to really get a true picture of it. I would say they are uniform. The crimps this way are uniform. The Crimps this way are uniform. I mean uniform one way and not the other. In Exhibit A-21, some are uniform and some are not. A lot of that is owing to the smallness of the sample, that the

(Testimony of Frank E. Essley.)

ends of the wires, whichever way they are like this on the arches would be higher than it would be if you had another wire woven in there. I would say that the intermediate arches are uniform. The arch there is not flat on top. It is not true that there is an inch and a quarter of that arch which is perfectly flat. I would say right offhand that there is very little perfectly flat, because you can see daylight under each side of your ruler. The fact that they are not quite uniform is owing to the fact that there is no wires woven in here. You blend this wire down with the tension, you will throw more arch into this wire here. This is more, the place to judge the screen would be in there where it is under tension. I do not see any flat top to the so-called arch on Defendants' Exhibit A-21.

Redirect Examination

On redirect examination in answer to questions by Mr. LeSourd, the witness, Frank E. Essley, testified:

I testified on cross-examination with regard to Defendants' Exhibits A-21 and A-23 that the lack of uniformity as to the plane or top of the screen which I found in one or two instances in those screens, was due to the fact that the ends of the wire were loose and had not been formed into the shape they would be formed in if another strand were woven in. Looking at Defendants' Exhibit A-21, with regard to the relative position of the wires on the outside edge of the screen, the two

(Testimony of Frank E. Essley.)

alternate wires here are on a higher plane than the two opposite wires. In other words, the next wire would weave over this, under this wire, over this, and under this. That would throw more of an arch into this particular section of the screen right here, because that would have to be pulled down to get another wire in using the same crimp as in one of these wires.

When I testified that the screens I saw in various plants were similar to Plaintiffs' Exhibit 2, I meant that the screens were made with a shallow crimp and an elongated arch. Those arches are not formed to the exact curvature of the different screens. Now on an inch and a half screen the arch is more pronounced than it would be on a two-inch screen. Therefore, the arch on a two-inch screen would be more elongated. In selling and observing the operation and use of these screens in the Northwest, I have had occasion to observe the effect of lack of uniformity in [67] the arches of a screen on its success in actual use. It would take very little lack of uniformity to cause a screen to be unsuccessful in actual use. It would take very little variation in the arches to make the great difference, because if one arch was arched upward more than the one next to it, there would be no tension between the high arch and the crimp on the lower side. That would cause a loose screen or a loose wire in a screen which would permit the two wires to rub together and soon wear themselves out, instead of

(Testimony of Frank E. Essley.)

being worn out by the material going over and through them. They would wear out between themselves.

Recross-Examination

On recross-examination in answers to questions by Mr. Catlett, the witness, Frank E. Essley, testified:

Referring to Defendants' Exhibit A-24, in my judgment that crimp is a shallow crimp. The wire between the crimps is arched. I did not see any of the screens of this type that I thought were manufactured by the defendant on my trips. I saw a screen similar to Defendants' Exhibit A-27. I would say those crimps were shallow crimps, and the wire between those crimps is arched. It goes on an arched principle at times. It does not have a flat top. It has a definite arch. My ruler does not touch for about three inches across that. Those arches are uniform. I do not have a ruler large enough to go across those. We would have to get a straight edge. I think that sample is large enough to determine the question as to whether there is absolute uniformity between the arches.

(At this point the plaintiff rested.)

JOSEPH E. LIPPINCOTT

testifying by deposition on behalf of the defendants, testified as follows: [68]

My name is Joseph E. Lippincott and address is 66 Main Street, Roebling, N. J. My present employment is Designer and Assistant Staff Engineer. My technical training consists of the study of Mechanical Engineering and the experience of 47 years with the Roebling Company. I have been connected with the Woven Wire Fabrics Division of the Roebling Company for 31 years in the capacities of Draftsman and Designer, General Foreman, and now Assistant Staff Engineer.

The Roebling Company has manufactured and sold woven wire screening of all types for the past 47 years that I have been connected with them and for approximately 25 years prior to that. The Company was incorporated as the New Jersey Wire Cloth Company on November 1, 1878. In the very early years of the Company's existence they manufactured the common types of screen known as double crimp and intercrimp, in classes known as window screen and fine and coarse industrial screen. As time went on, various new types were developed and manufactured to suit demands of the times. These, of course, were all made in various types of metals, the same as today.

The Roebling Company has manufactured the flat top type of screen since 1932. My part in the manufacture of these screens has been to design all the crimping dies, etc., and to supervise their use.

(Deposition of Joseph E. Lippincott.)

In the manufacture of Flat Top type screens, the same as in any other, there are certain definite principles of construction that must be incorporated in the design. These screens are made in several different types of steel and the design must be such as to permit fabrication of any of those types without setting up internal stresses and strains which would cause premature failure of any of the wires before the screen is worn out. With this thought in mind, the crimping dies are designed to set up minimum strains in the wire [69] itself, and at the same time, produce a rigid screen after fabrication.

Other connections I have had in the manufacture of woven wire screen is to work out tables, rules, and formulas for all and various types of weave with maximum and minimum limits as to wire, mesh, and maximum amounts of crimp permissible for certain specifications, etc. I have designed several types of screen for the Roebling Company which the company did and still is manufacturing. We designed what we called a Hy-Lo type crimp, shown on Page 4 of our Catalog W-903, back about 1925. We then designed the Roeflat type shown on Page 2 of the same catalog, in 1932. The Roeslot (2) types shown on Page 6 was designed in 1935. In 1948 we designed a Flat Roeslot type not shown in the catalog. We can furnish photostats or prints of all these types.

The Court: Let "A" be marked Defendants' Exhibit A-1; let "B" be marked Defendants' Ex-

(Deposition of Joseph E. Lippincott.)

hibit A-2; let "C" be marked Defendants' Exhibit A-3; let "D" be marked Defendants' Exhibit A-4.

(Photostats marked Defendants' Exhibits A-1, A-2, A-3 and A-4 for Identification.)

Photostats and prints attached marked "A," "B," "C" and "D," dates shown on each print. The Roebling Company manufactured all these types of screen as soon as they were designed on or about the dates mentioned. "A" designed 1925; "B" designed 1932; "C" designed 1935; "D" designed 1948. Early designs were made from sketches which have been lost or destroyed.

It would be quite a lengthy process to detail all the steps in the process of manufacture of all the above-mentioned screens. Suffice it to say, the steps are about the same in any or all of these screens and, in simple terms, are as follows: The first operation is the crimping of the wire for both the warp [70] and fill. The second operation is threading up the loom. The third operation is weaving or feeding in the filling wires either manually or mechanically. When the wire of which the screen is made comes from the coil it possesses a natural curvature. The crimping of the wire in a Flat Top type naturally produces an arch when you do not employ dies to prevent. We, of the Roebling Company, design our crimping dies in such a way as to remove the arch. Our dies are made with a hard flat plate at the bottom to remove or prevent this arch or bow from forming as the

(Deposition of Joseph E. Lippincott.)

crimps are produced. The nicks in which the interlacing wires lay are produced by a "Nicker Tooth" placed in the die for that purpose. See TC 572 Exhibit "B."

That arch, whether a natural arch as a result of coiled wire, or an arch produced by the crimping, was known to the manufacturers of woven wire screens prior to the dates of my prints. This bow or arch is a natural result of crimping unless something is done to prevent it. We knew of its existence and did something to prevent it for the reason just mentioned. Other manufacturers knew of it also, but we cannot say just how long previous to the design of our dies. Several years to my knowledge. That arch was removed deliberately by John A. Roebling's Sons Company in order to give longer life to the screen.

I am acquainted with the S. H. Palmer Patent No. 2074665. At the date of this patent there was nothing new about it. It involves nothing that was not already known by myself at the date of this patent.

33. Does it, in your judgment, involve any inventive genius or invention?

Mr. LeSourd: If the Court please, I will object to that question on the ground that it calls for a conclusion of the witness as to invention, which is the province of the Court, the witness not having been qualified for that purpose. [71]

The Court: The objection is overruled. The Court will hear the tesimony

(Deposition of Joseph E. Lippincott.)

Answer: "No."

This patent does not include anything not already known to ourselves and other manufacturers of woven wire screens at about 1932 or slightly before that date. I know whether any other manufacturers of woven wire screens made or sold the flat top type of woven wire screen prior to August 2, 1932. This type of screen was made and sold by the Manganese Steel Forge Company of Philadelphia, Pa., back about 1918, under the Rol-Man Patent. Also, refer to Patent No. 1,139,469, issued to W. S. Potter, May 11, 1915; also, Patent No. 1,814,598, issued to R. Herrmann, July 14, 1931.

We were familiar with the art of wire screen weaving for several years prior to 1932. The flat top construction type of woven wire screens was known and in use and being manufactured prior to that time. An arch or bow between crimps similar to the arch in the Palmer patent was known to manufacturers of woven wire screens prior to August 2, 1932. I am familiar with the Winfield Scott Potter patent No. 1139469, issued May 11, 1915.

41. If so, does the S. H. Palmer patent contain any new and useful features which do not appear in the Potter patent? If so, enumerate them.

Mr. LeSourd: If the Court please, we object to that question on the ground that it calls for the construction of the terms of written instruments, namely, the two patents involved, and an attempt to interpret the terms of those instruments and thus compare them. The witness is not qualified to ex-

(Deposition of Joseph E. Lippincott.)

press an opinion on the construction of a patent, and we have cited cases in the memorandum of authorities filed with the Court on that subject to which I can refer [72] if the Court so desires.

The Court: The Court will overrule the objection and will hear the testimony. What effect it has upon the Court is a matter which may be the subject of proper argument later.

Answer: "No.

I am familiar with the patent issued to J. W. Galloway, on May 2, 1933, No. 190756.

43. If you are not familiar with the Galloway patent, will you examine the copy of that patent, No. 190756, look at the prints, read the claims carefully and then state whether or not in your judgment there is anything new or useful in the Palmer patent which does not appear in the Galloway patent?"

Mr. LeSourd: If the Court please, the plaintiff makes the same objection to this question. It calls for construction of the terms of written instruments and calls for the opinion on the construction of a patent as to which this witness is not qualified.

The Court: Overruled.

Answer: "No, nothing.

44. Calling your attention to Figures 2, 3, 5 and 6 in the Galloway patent, do those Figures also show arches even more exaggerated than in the Palmer patent?"

Mr. LeSourd: If the Court please, the plaintiff makes the same objection last stated to this question.

(Deposition of Joseph E. Lippincott.)

The Court: The objection is overruled.

Answer: "Yes.

Assuming all screens are made from spring steel, we would say the rectangular mesh or opening, which we term "Roeslot," would be the most efficient for mining or gravel use. The rectangular mesh may not, however, produce the most accurate sizing which is quite important in a gravel screen. The Roeslot screens, as made by us, are made of the Flat Top type of crimp in one direction and double crimped wire in the other direction which produces a Flat Top type of screen. This is usually in the smaller size of meshes; the larger sizes may have the Flat Top type of crimp in both directions, but these are not quite so common. The dies used by us definitely remove or prevent the formation of any arch or bow except in a very tight mesh where there might be a slight arch formed in weaving, as indicated in Exhibit "E"."

The Court: Let that be marked Defendants' Exhibit A-5.

(Wire screen marked Defendants' Exhibit A-5 for Identification.)

The one and only feature which identifies the flat top type of screen is these crimps are all on one side of the screen only and there is a flat wearing surface on the other. The flat top type of screen has been in use about 16 or 17 years prior to 1932. The construction provided by Palmer could be considered as an improvement only in the fact that the crimping is

(Deposition of Joseph E. Lippincott.)

less severe on the wire. That is, the bends or crimps are less severe. However, a proper type of wire overcomes this advantage and allows a more severe crimp in removing the arch. In my opinion, considering wear on a finished screen only, a screen constructed on the Palmer plan will not wear quite as long as one constructed on our plan which is the same as the Scott Potter plan. This is because the Potter plan presents more wearing surface than the Palmer plan. The flat top construction under the Potter plan if properly made from the right kind of steel, will maintain uniform openings during the wearing life of the screen.

Projections above the top plane of the screen are objectionable. The reason for this is because any projection presents [74] a wearing surface above the body of the screen and as they are worn off the life of the screen is reduced accordingly. The arches of the Palmer screen are above the mean plane of the screen. This feature is objectionable in our opinion, because as stated in the previous question, all or any projections wear faster than the main body of the screen. Therefore, in the Palmer screen, the bow or high arches tend to wear in the center, with the result that the wires are worn through in the center while at either side there is still a considerable amount of wire that has very little or no wear. The Palmer plan of construction did not constitute an advance in the screen making art; it simply produced a slightly different type of flat top construc-

(Deposition of Joseph E. Lippincott.)

tion, which was known by myself when designing our Flat Top type of crimps. It constituted a going backward, in a sense, because the same principle had been developed so many years before by Potter, Hermann, Rol-Man, and others.

Mr. LeSourd: If the Court please,I wish to move to strike the answer to question No. 56 for the same reason as above stated; that is, that he has attempted to construe the terms of written instruments, namely the patents involved, and is not qualified to do so.

The Court: Denied.

It does not perform any new function.

It is possible to cold press crimps into 3/8 inch or larger high carbon and high manganese content spring wire without producing bows in the wire between crimps so long as the manganese content is not too high, and providing the steel has had the proper heat treatment. It is also possible to crimp without producing the bows. Almost any desired crimp or shape can be produced providing the wire has the proper chemical and physical properties and the proper design or dies is used. As [75] stated in No. 46, it is necessary to have the proper dies to remove or prevent the bow from forming. It is not possible to crimp such wire for flat top type of construction without bows without dies specifically designed to permit the bow forming. If bows are present they will vary in length with the size of the opening. The flat portion between the crimps also will vary with the size of the opening. These will

(Deposition of Joseph E. Lippincott.)

appear to be more of a bow or an arch with the smaller openings.

Cross-Interrogatories

In the testimony given in reply to Interrogatories 8, 9, 35, 36, 38, 47, 49 and 52, would say the "flat top" or "Roeflat" screen, concerning which we have testified, is fundamentally the same as the Potter patent No. 1,139,469, dated May 11, 1915. With regard to the manner in which any "flat top" screen, concerning which I have testified, differs from that disclosed in the Potter patent, if it is not the same type as the Potter patent, there is one "flat top" screen of which we have testified, namely, the "Flint Screen" manufactured by the Western Fence & Wire Works under the Palmer patent No. 2,074,665, which differs only in the fact that it contains a slight "natural" arch or bow between the crimps. We explained this feature in our answer to question No. 25. The design of our original "Roeflat Screen" was identical to that of the Potter patent, although we did not realize it at the time of its design. Our dies were designed to remove or prevent this "natural" arch from forming, as far as practical manufacturing practice will allow. Our present "Roeflat Screens" are the same as the Potter screen, except that we have improved its design by placing a "Nick" at the intersection of the straight portion of the wire to help prevent the longitudinal wire from shifting out of place. This nick is similar in

(Deposition of Joseph E. Lippincott.)
design to that shown in the Hermann patent [76]
No. 1,814,598, of July 14, 1941.

The information on which I base my testimony that an arch or bow between crimps similar to the arch in the Palmer patent was known to manufacturers of woven wire screens prior to August 2, 1932, was that the information that we had on this "natural" arch was from our observation of some of other manufacturer's screens and from our own knowledge and experience in the design of this and other types of screens and the dies for making same.

All the answers to all the interrogatories of this subject are from my own knowledge and experience and I have collaborated with no one else on any detail because, as a matter of fact, there is no one else left in the compauy who is familiar with all of these questions. All those who would have been familiar with them have either been retired or died. It will only be a matter of a few more months before I myself will be on the retired list.

(Defendants' Exhibits A-1, A-2, A-3, A-4, and A-5 received in evidence.)

DUNCAN C. DOBSON

testifying by deposition on behalf of the defendants, testified as follows:

My name is Duncan C. Dobson, 634 South Newstead Avenue, St. Louis, Missouri. My present employment is as President of the Ludlow-Saylor Wire Company. I have had no actual technical training.

(Deposition of Duncan C. Dobson.)

Have had 18 years practical experience in dealing with the manufacture and sale of all types of woven wire screens. I first came with the Ludlow-Saylor Wire Company in September of 1931. Have served as salesman, assistant production manager, office manager, secretary, sales manager, and president.

The Ludlow-Saylor Wire Company engaged 100% in the [77] manufacture and sale of woven wire screens, the annual sales running in excess of two million dollars. It has been so engaged since 1895 and covers in the sale of these screens the entire United States and the rest of the world. It has been engaged in the manufacture and sale of woven wire screens for fifty-four years. The corporation makes and sells every variety of woven wire screen that can be made. We have one plant which is located in St. Louis, Missouri.

The Ludlow-Saylor Wire Company manufactures woven wire screens of the flat top construction type. The screens are woven in such a way that all of the crimps in the wires are on one side of the screens so that the opposite side of the screens have a flat smooth surface and are practically flat. In its manufacture of that type of screen the Ludlow-Saylor Wire Company uses what is commonly known as a gravel spring steel wire. This wire is high carbon and high manganese content wire. The approximate time when the flat top construction type screen was first used by the Ludlow-Saylor Wire Company was 1931. The Ludlow-Saylor Wire Company on March 26, 1931, received an order

(Deposition of Duncan C. Dobson.)

from the American Agriculture Chemical Company, 1602 Syndicate Trust Building, St. Louis, Missouri, for 4 pieces 5 feet long x 36 inches wide 3 1/2″ opening, 3/8″ diameter wire high carbon wire made with one side flat. We manufactured screens under that order and the screens were delivered on April 6, 1931, to the American Agricultural Chemical Company at National Stock Yards, East St. Louis, Illinois. This cloth was woven of high carbon wire. These wires were crimped. One side of the screen was flat, or practically so. All of the crimps were on one side of the screen. The opposite side of the screen was practically flat. The screens were cold pressed.

The Ludlow-Saylor Wire Company furnished these facts to [8] a Mr. Estill E. Ezell. He is a patent attorney in St. Louis, Missouri who claimed to represent Little, Leader, LeSourd & Palmer. The Ludlow-Saylor Wire Company delivered to Mr. Ezell a sample made by it of the actual screen made by it on March 28, 1931.

Mr. LeSourd: I would like to point out to the Court that we have introduced that sample already in evidence, being Plaintiffs' Exhibit 9.

The Ludlow-Saylor Wire Company does not have on hand any samples of the actual screen made in 1931 on the above order. The samples made up on on March 23, 1949, were duplicates of those furnished the American Agricultural Chemical Company. The sample furnished Mr. Ezell was identical

(Deposition of Duncan C. Dobson.)

with a sample sent to Messrs. Catlett, Hartman, Jarvis & Williams, of Seattle, Washington, attorneys for the defendant company.

The flat top construction type of screen was not manufactured and sold or used by the Ludlow-Saylor Wire Company prior to that time. It was used before that by the Manganese Steel Forge Company, Philadelphia, Pennsylvania. The Ludlow-Saylor Wire Company has continued to manufacture and sell the flat top construction type of screen since the date I have mentioned.

I am familiar with the Winfield Scott Potter patent No. 1139469, issued May 11, 1915. That patent is concerned with the flat top construction type of screen. The process of manufacture of the flat top construction type of screen being manufactured by the Ludlow-Saylor Wire Company is that we use two methods of crimping the wires for flat top construction (1) The wires are crimped on the press. (2) The wires are crimped by crimping wheels. After the wires are crimped by either of these methods, the material is woven in to screens on a bench type loom. [79] When the wire comes from the coil the wire has a natural curvature. The crimping of the wire does not produce an arch in it as there is a natural arch in the wire as it comes from the coil.

I was and am familiar with the state of the art of the manufacture of woven wire screens as it existed prior to August 2, 1932. The flat top con-

(Deposition of Duncan C. Dobson.)

struction type of screen was known and in use and being manufactured prior to that time. I am generally acquainted with the Samuel H. Palmer patent No. 2074665. An arch between crimps, similar to the arch shown in the Palmer patent was known to manufacturers of woven wire screens prior to August 2, 1932. The Ludlow-Saylor Wire Company does not do anything to remove the natural curvature. The Palmer patent has nothing which was new and useful in the light of my knowledge of the state of the art prior to August 2, 1932, and it involves nothing which was not already known.

52. Does it, in your judgment, involve any invention?

Mr. LeSourd: I will object to that question on the ground that it calls for a conclusion of law on the ultimate question before this Court, and the witness has not been qualified to answer the same.

Mr. Catlett: The same question Your Honor has already ruled on.

The Court: The objection is overruled.

Answer: No.

It does not involve anything more than mechanical skill. It does not include anything not already known and used or deliberately discarded by manufacturers of woven wire screen prior to that time.

55. Is there anything, in your judgment, in the claims of the Palmer patent which is new and useful, that is not contained or covered by the Potter patent, a copy of which is [80] attached to these interroga-

(Deposition of Duncan C. Dobson.)

tories, and to which your attention has been previously called?

Mr. LeSourd: I will object to that question on the ground that it calls for the construction of written instruments, and a conclusion and opinion on a conclusion of law as to which this witness is not qualified.

The Court: The objection is overruled.

Answer: No.

I am generally familiar with the Galloway patent No. 1907056.

58. Is there anything new and useful in the claims in the Palmer patent not covered in the Galloway patent?

Mr. LeSourd: I object to that question on the ground that it calls for the construction of written instruments and a conclusion of law.

The Court: Overruled.

Answer: No.

59. Is there any substantial or useful difference between the two?

Mr. LeSourd: I will make the same objection.

The Court: Overruled.

Answer: No.

Cross-Interrogatories

The woven wire screens of the "flat top" construction of which I have testified were and are of the same type as that shown and described in the patent to Potter, No. 1,139,469, May 11, 1915. There is no difference between any "flat top" screen concerning

(Deposition of Duncan C. Dobson.)

which I have testified and that shown in the Potter patent. A sample of the "flat top" screen to which I have referred was submitted to Mr. Estill Ezell, representing the law firm of Little, Leader, LeSourd & Palmer. [81]

When I testified that an arch between crimps similar to the arch shown in the Palmer patent was known to manufacturers of woven wire screen prior to August 2, 1932, the manufacturer that knew of this arch was the Manganese Steel Forge Company, Philadelphia, Pennsylvania. They knew of the arch approximately in 1925. We received advertisement showing cuts of this type of material and also containing testimonial letters from two of their customers who had used the material, both letters dated 1925. In answer to the question of whether I myself at any time observed this arch, I did not actually see the material, only cuts in their advertisement. In answer to the question, "Describe exactly the arch known to each of these manufacturers and state how it was formed and to what use it was put," I would answer that we are not familiar with their method of manufacture. As to whether any of these manufacturers ever used this arch in a completed woven wire screen, I refer to my answer stating that our information was through the advertisement. We do not know the actual size of specifications furnished by Manganese Steel Forge Company to their customers as their advertisement indicated they were equipped to furnish specifications.

(Deposition of Duncan C. Dobson.)

In testifying that the Palmer patent does not include anything not already known and used or deliberately discarded by manufacturers of woven wire screen prior to 1932, I considered all features of the disclosure of the Palmer patent. The persons by whom each feature was, prior to August 2, 1932, known and used, or known or used and deliberately discarded, are Manganese Steel Forge Company, Philadelphia, Pennsylvania, and the Ludlow-Saylor Wire Company, St. Louis, Missouri. As to how we came to know each item of information concerning the knowledge or use of the arch disclosed in the Palmer patent, my answer is that in the manufacture of flat top construction screens by our company [82] the natural curvature of the wire coming from the coil was very evident. The conditions and circumstances under which I became familiar with the arch were in the normal course of observing the manufacture of this type of screen. There were completed woven wire screens containing all of the features of the Palmer patent made prior to August, 1932. The name of the weaver is not known. Woven on March 28, 1931, made of wire crimped as it came from the coil, woven in such a way that one side of screen was practically flat, all crimps being on the opposite side. Being production manager at that time, I was fully acquainted with these details. The screen was made with 3½ inch opening, woven of ⅜" diameter wire of a high carbon wire and was woven in such a way that one side of the screen was practically flat, all of

(Deposition of Duncan C. Dobson.)

the crimps being on the opposite side of the screen. It is impossible to state the radius of whatever arch existed since this arch was caused by the natural curvature of the wire as it came from the coil. Whatever arch existed was between the crimps.

L. W. JONES,

testifying by deposition on behalf of the defendants, testified as follows:

My name and address is L. W. Jones, Jr., 1310 Montgomery Avenue, Rosemont, Pennsylvania. My present employment is President of Manganese Steel Forge Co., Philadelphia, Pa. I have manufactured and sold woven wire screens since 1921. I have been 13 years as Vice-President and 15 years as President of Manganese Steel Forge Company.

Manganese Steel Forge Company manufactures and sells woven wire screens made from 11.00% to 14.00% austenitic manganese steel. It has been so engaged for 28 years. It covers United States, Canada and export to foreign countries. The [83] varieties that the corporation makes and sells are 11.00% to 14.00% Rol-man Manganese Steel "Double Lock Mesh" (flat top) woven screens. The Manganese Steel Forge Company manufactures woven wire screens of the flat top construction type. The main features which identify this type are the flat top surface with high points of crimps on opposite or back side. The Manganese Steel Forge Company does not use what is commonly known as "gravel spring

(Deposition of L. W. Jones.)

steel" wire. When you say "this wire," high carbon and manganese content wire, if you mean "this wire" as referring to "gravel spring steel" wire, yes, that is a commonly used terminology.

Manganese Steel Forge Company commenced using flat top type of construction in 1921. It was used prior to that time by Alloy Steel Forging Co., Carnegie, Pa. I am familiar with the Winfield Scott Potter patent No. 1139469, issued May 11, 1915. That patent is concerned with the flat top type of construction screens. Manganese Steel Forge Company was licensed and operated under the Potter patent. I am familiar with the Galloway patent No. 1907056, issued May 2, 1933. Manganese Steel Forge Company held a license under that patent. It would be too lengthy to describe in detail the process of manufacture of the flat top type of construction screen being manufactured by the Manganese Steel Forge Company, but the main difference lies in the fact that 11.00% to 14.00% manganese steel screen wires are hot crimped, whereas in the manufacture of spring steel screens, the rods are cold crimped.

In the manufacture under the Potter patent the rods or wires are "substantially straight" as he states; that is, as straight as good manufacturing practice will permit.

Cross-Interrogatories

In testifying concerning flat top type construction of [84] screen, the screens to which I refer are the same type as that shown and described in the patent

(Deposition of L. W. Jones.)

to Potter. Screens as described in the Potter patent, 1,139,469, are one of the flat top types referred to. A flat top type of screen which is not of the same type as that shown in the Potter patent concerning which I have testified, is screen made under the Galloway patent, 1,907,056, with an additional crimp between the deep downward crimps (typical of the screens made under Potter patent 1,139,469) are also a flat top type. Under the Potter patent the wires or bars between the crimps are substantially flat on their upper surface.

FRANK M. GUESS,

testifying by deposition on behalf of the defendants, testified as follows:

My name and address are Frank M. Guess, El Monte, California. I am Manager of the Abbey-Scherer Company, El Monte, California. I have had 16 years experience in the manufacture and sale of woven wire screens, principally industrial screens. I have been with Abbey-Scherer Company one year as half owner along with J. R. Scherer, the other ½ owner. Ten years as sole owner. Since 1944 our oldest son, Joseph, has had a ⅓ interest in the business. We sell woven wire screens quite extensively in California, Nevada, Arizona, New Mexico, parts of Texas and some shipments to Republic of Mexico and to the various islands in the Pacific. We have had a constant increase in business in this area since

(Deposition of Frank M. Guess.)

1934. I was not engaged in this business prior to my connection with Abbey-Sherer Company. Abbey-Scherer Company has been engaged in the manufacture and sale of woven wire screens since 1911, established in Detroit, Michigan. I have been engaged in it for 16 years. Abbey-Scherer [85] Company makes and sells industrial wire screens. It manufacturers screens of the flat top construction type. The main features which identify the flat top construction type of screen are just what the name implies. No crimped or stretched portion of the wire used comes in contact with the abrasive material passing over or through the screen.

I have registered with the United States Patent Office as a trademark, the trademark which includes the name "Flat Top." I have sent to Mr. Kay copy of trade-mark 370810. The trademark was registered September 5, 1939.

In the manufacture of this type of screen Abbey-Scherer Company is using what is commonly known as gravel spring steel wire. This wire is high carbon and high manganese content wire. The flat top construction type of screen was first used by me or by the Abbey-Scherer Company in 1933. It was not used before that to my knowledge by any other person or company. We have continued to manufacture and sell the flat top construction type of screens since said date. The Potter patent is identical except that we place an indention half way between the two "humps" so that as the fill wire

(Deposition of Frank M. Guess.)

has a definite resting place and holds the size of opening exact.

I am not familiar with the Galloway patent, No. 1907056, issued May 2, 1933. After examination of drawing in the Galloway patent I would say it has no relation whatever to the flat top construction type of screen.

We have two distinct methods of manufacture for our "flat top." Heavy rods or wire are pre-crimped on various punch presses, some lead by hand and others by automatic lead. The other process is through crimpers we have developed. The finished product is the same in each case. The punch press operation requires straightening and cutting the wire, while the crimper [86] process comes off the coil. In each instance after crimping the warp is set up in the loom in which they are woven, the fill wire forced into their resting place, passing out finished except for cutting and trimming. When the wire comes from the coil there is a natural arch or set. (This arch is removed before crimping.) The crimping of the wire produces an arch in it but it is very simple to remove this arch or place more in it for that matter. Abbey-Scherer Company removes this curve or arch. The crimps in which the interlacing wire rests are produced on the punch press operation. The wire passes over dies which place the crimps and "nitch" (as we call it) for the interlacing wire. I consider the arch an objectionable feature.

(Deposition of Frank M. Guess.)

I was not familiar with the state of the art of manufacture of woven wire screens prior to August 2, 1932.

The arch, except that necessarily caused by the crimping, was removed by the Abbey-Scherer Company deliberately. I am not acquainted with the Samuel H. Palmer patent No. 2074665. I do not feel qualified to answer anything prior to August 2, 1932. Figure 1 of the Potter patent shows an arch slightly similar to that shown in the Palmer patent. There is a substantial or useful difference between the two. The Potter patent has a definite holding spot for interlacing wire while the Palmer patent appears to me to be nothing more than an old style double crimp. In fact, it would appear that under heavy load the wire in the Palmer patent would shift and lose sizing, while the Potter patent would hold the size of opening much better. Figures 2, 3, 5 and 6 in the Galloway patent, Exhibit 3, show arches between the crimps. The type of woven wire spring steel gravel and mining screen that produces the greatest efficiency is the flat top. The process employed by the Abbey-Scherer Company prevents the formation of any arch. As far as I know, flat top was not put in [87] use until 1933 and was not copied until several years later by other manufacturers. I never heard of the Potter patent until we started a suit against the Ludlow-Saylor Co. of St. Louis a few years ago. The construction provided by the Palmer patent is not an improvement on the flat top type.

(Deposition of Frank M. Guess.)

In my opinion, screens constructed on the Palmer patent will not wear longer. The flat top construction type maintains the uniformity of the openings during the wearing life of the screen. Projections above the top plane of the screen are objectionable because any projection is sure to receive more wear than anything perfectly flat. If for no other reason than that it would receive more weight of the load of the material being graded. While flat the weight would be more equally distributed. Also, anytime a wire is crimped there is an action on the grain structure which elongates it causing quicker wear on such parts. To the extent that Palmer provides for arches above the mean plane, the arches are objectionable. The Palmer patent plan of construction does not constitute an advance in the art of screen making. It constituted a retrogression. It does not perform any new function. It does not disclose any ingenuity or any result due to anything other than mechanical skill.

Cross-Interrogatories

The "flat top" construction type of screen concerning which I have testified is approximately the same as the Potter patent. As to any "flat top" construction type of screen to which I have testified which is not the same type as that shown in the Potter patent, I testified about the Galloway patent and the difference between the Galloway and the Potter is there is no similarity between the two as

(Deposition of Frank M. Guess.)

to construction. The Potter patent has between the crimps straight wire, while the Galloway is distorted in several different places between the crimps, which in [88] my estimation draws a line between the comparisons. [89]

KARL H. KAYE

called as a witness by and on behalf of defendants, having been first duly sworn, was examined and testified as follows:

Direct Examination

In answer to questions by Mr. Catlett, the witness testified:

My name is Karl Hubert Kaye. I reside at Winslow, Washington, Bainbridge Island. My business is manufacturer, woven wire screens and wire products. I am president and general manager of the defendant Pacific Wire Works. There has been two corporations. The company was founded in 1891 as a partnership. It was incorporated in 1907 and was disincorporated—I can't give you the exact date, I believe it was approximately 1944, I would have to look up on our records—for a period of about three years for tax purposes primarily, and was reincorporated in 1948. In the years between disincorporating and reincorporation in 1948, the business was conducted as a partnership between Matilda Kaye, my mother, and myself.

This business was established by P. C. Bergman, and shortly thereafter my father, Mr. Herman

(Testimony of Karl H. Kaye.)

Kaye, became one of the partners. The first time that I became connected in any way was when I was a boy working in the plant during the summer time while I was going to school. That was along in 1914 and 1915, and thereafter I worked there for several summers. I became connected with the plant again in 1931. I had worked in the plant when I was a boy and up into high school, but at the time I left college I did not enter the employment of the Pacific Wire Works until my father passed away in 1931. After that I was with them on full time employment for approximately three years, and then I left them and re-entered my former business of the investment business, [90] and went back again in 1939 and have been there ever since when I was able to purchase a block of stock.

I am familiar with the business of the company and its process of manufacture. We serve from Alaska to the north to Arizona in the south and California, of course, and as far east as North Dakota. We have made some export shipments to the Pacific as well. Our products are various types of wire cloth—that means industrial black galvanized, all types of wire, screens for aggregate in mining, wire fabricated products both woven and welded. That is of our manufacture. We also represent other companies but that is of our manufacture. We manufacture and handle wire screens. Wire screens have been manufactured for many years. I would say practically from the inception

(Testimony of Karl H. Kaye.)

of the company. There are different types of wire screens. Our handling of industrial wire screens for screening gravel or rock goes back many years, if you have reference to screens regardless of the type of wire that is in the screens. We have made screens for gravel use of a basic—what we call hard steel wire, and also out of galvanized wire. In those days, they used to use galvanized wire. I would say that would go back to—I believe the first catalog was issued around 1913 or thereabouts. I could get that exact date if it was required.

In the 30's the Pacific Wire Works Company was not purchasing any wire screens of the industrial type unless it would be in the year 1939, to my knowledge. Pacific Wire Works has purchased screens from the plaintiff in 1940 through 1944. We stopped purchasing at that time because we weren't entirely satisfied with the screen that we were getting, for one thing. We had some even come into our plant with broken wires in them that were replaced by Western Fence and Wire, but it necessitated a delay. We also found that when a purchaser of gravel screens [91] placed an order for a varied number of sizes at one time including in the sizes some of the larger openings which we were purchasing out and not making ourselves, and we were dependent upon our supplier for delivery. Sometimes he would get the same inquiry that we would, being in relatively a close distance from our plant, from Seattle to Portland, and our delivery date would naturally be longer than his

(Testimony of Karl H. Kaye.)

own delivery date, so therefore we found we lost the orders that we could make in our own plant. We lost the overall order because of the delivery date on that we were not manufacturing ourselves. We did, however, buy from other companies, too. We bought from the Abbey Scherer Company, El Monte, California. I might add that our purchases were beyond the range that we manufactured in our own plant, which began with the inch and a half opening, 3/8 inch wire.

From 1944 on we have manufactured what we would term a pretty full range, from the finest in a spring steel wire. Ten mesh, No. 20 wire is the finest we make in our own plant, and I believe the coarsest, the largest opening, would be 4 inch opening, 5/8 inch wire. It might be 4 and it might be 5½. The smallest gravel wire screens we make of any type of construction would be ten mesh, No. 20, which is a woven screen. That is similar to the regular type crimp, double crimp screen. We use the double crimp construction type of screen up to and including from this 10 mesh, which is a very fine opening, I would say 1/16 inch opening between the wire, from that opening to a 1¼ inch opening between the wires, No. O wire, which is 5/16 inch wire. We use that range, all the different ranges between openings we are manufacturing with the double crimp type of crimp. Then beginning with 3/8 inch wire and 1¼ inch opening, from there on using the larger size openings and the larger wires, we manufacture that on the flat

(Testimony of Karl H. Kaye.)

top type of construction. Very seldom do [92] we make as small as 1¼ inch opening with ⅜ wire. That is a very heavy screen in relation to its opening. It is a very heavy duty screen. We don't make it very often. Generally speaking, our smallest screen of the flat top type construction is the 1½ inch opening. We call our screen the Pacific 4-S screen.

Defendants' Exhibit A-9 is a wire that has a crimp for a finished screen that would have a 2½ inch opening, and it is of a ½ inch diameter wire. This wire is actually one that is a warp wire that has been crimped in making a screen for manufacture and our practice is to make them longer so that we can use them later for short wires, so that wire is either 3 or 4 feet long. I don't know which it is, but it will be one or the other so that it can be reused. The actual crimp in that wire is one that the rest of it was on here, it would keep right on going and the screen has actually been woven. We stack them up until we get another screen the same opening. That is a piece of wire that was left from a piece which was used in actual manufacture of a screen. That was taken from that bundle to bring up here. It wasn't manufactured for the purpose of this case. A-10 is a wire that has been punched so that when it is in a screen complete it will be a 3 inch opening with a ½ inch diameter wire. This is a wire that is again the end of the warp wire which is the long wire if you are making

(Testimony of Karl H. Kaye.)

a screen. The warp is the long wire that has gone into your loom, and we make them sufficiently long so that we can use those wires for a warp wire in the future in a screen, the next order, when it may come, would be a 3 inch opening ½ inch wire for that particular width. That way we save poundage of wire on the ends of our loom. This has been taken from a bundle. We bundle them up and rack them. It has been taken out of one of those bundles similar to A-9, except [93] a different opening. We do not keep on hand a stock of finished screens of the 1½ inch opening, ⅜ wire on up. We do keep a stock of screens in the smaller openings, for instance, on 1¼ inch opening, 5/16 inch wire, when we make it with the double crimp. This is true of all the double crimp openings we use a lot of. We make those 100 feet long at one time as a rule. Then we cut off what we need and have a stock of certain widths that we find are the popular widths. So far as the screens concerned in this case, we do not keep a stock of screens on hand.

A-11 is a wire which has been punched for a two inch opening with a ⅜ inch diameter wire. This also has been taken from a bundle that is the end of a warp wire that has actually gone into a screen, and has been crimped right along with the screen. There is no change in the depth of the crimp at all from the ones in the screen. It has been taken out of a bundle and has not been made as a special exhibit.

A-12 is a wire that has been punched that went

(Testimony of Karl H. Kaye.)

into a screen, 1¾ inch opening ⅜ inch diameter wire. This also is from a warp wire that has actually gone into a screen. The rest of it has actually gone into a screen similar to before and is the same depth of crimp as went into that regular screen and has come out of a bundle that is in our rack that will be woven up in a later screen as cross wire.

A-13 is a wire which has been crimped for a 1½ inch opening ⅜ inch wire. This also is one that is the end of a warp wire and has been crimped just the same crimp right straight through, because naturally they don't change and they are going to put in the looms but leave it out so we have enough for the width of the wire. I do not believe that the slight bow in this from both ends is sufficient that it wouldn't come down into plane when it was woven. However, if it should be, we do [94] straighten these sometimes by merely putting them in a vise and getting the bow out. This happens to have a little more bow in than the others, but it is just as it came. It has not been altered in any respect. That change would not affect the nature of the arch.

A-14 is a sample of a wire which has been punched for a 2¾ inch opening with a ½ inch diameter wire. That again is one that has actually been part of a warp wire. It has been taken out of the bundle and has actually been punched for a screen in a like manner to the others.

A-15 is a part of a warp wire that has been

(Testimony of Karl H. Kaye.)

punched for a finished screen which will have a 3 inch opening, and this is a 7/16 inch diameter wire. This has been taken from a bundle of warp wire which has been punched and been used in an actual screen.

A-16 is a punched wire for a 1½ inch opening ⅜ inch wire and is one that has come from our rack. We have two of them here, I believe, of the same opening which have come from our rack, and is part of a warp wire and will be used later as a shot wire. That opening is similar to the size opening in Plaintiffs' Exhibit 2. When it is woven up it would make a screen similar to what is in Plaintiffs' Exhibit 2. This rod would be used in a screen with the same size opening, same size wire as No. 2. A-17 is a wire that has been punched for a 2¾ inch opening with 7/16 inch diameter wire. This again is the end of a warp wire which has gone into a screen similar to the others and will be used as a shot wire. It has been taken from a bundle of like punched wire. A-18 is one which has been taken from a rack of 2¼ inch opening, ⅜ inch wire, and likewise is the end of a warp wire which has been punched and has gone into a screen. It is identically the same indentations and all that [95] here in the screen itself. A-19 is one that obviously cannot be used as a warp wire again. This was the end of a warp that had just recently been made of a 1¼ inch opening, ⅜ inch wire. That is the smallest size we ever make. Of course, it cannot be used again, but is

(Testimony of Karl H. Kaye.)
merely demonstrating that has gone into a screen. That illustrates the depth of a crimp, that is the exact depth of the crimp that went into that screen, because it is part of it. It was cut off right here. It illustrates the nature of the arch for that opening.

A-20 is a sample of a 2 inch opening, 3/8 inch wire. This is the size of samples that we use. That is identical with the screens that we manufacture of that opening. The fact of the matter is that this sample was made from one of these long wires. We do that often in making these samples. We actually cut them up and use them for samples. This is one that was taken from one of those. The sample was put together out of the wire that went into a screen.

A-21 is a 1½ inch opening, 3/8 inch wire. That again is one that like all of our samples we use is made and that was made from a wire that was punched and went right into the screen. That accurately depicts what the screen looks like when complete. Right in this area here it does. The central area.

A-22 is a screen that is a 3 inch opening, ½ inch wire. The fact of the matter is, I believe, we have got a 3 inch opening with ½ inch wire right here. This is a single wire. This has been put together from one of those wires exactly the way it was punched. It was put together from a warp end wire. It is identical—it was just punched right with the regular screens. [96]

A-23 is a sample that has been taken directly out

(Testimony of Karl H. Kaye.)

of our sample case in the office and is a 1½ inch opening ⅜ inch wire. I cannot tell you how long ago that was made because that one is out of our sample case, because of this tag. It was not made for use particularly in this case. It was made as a sample for our office and has been there for some time, but we brought it here as one of our samples. I can tell from this tag. The opening in that sample is similar to the opening in Plaintiffs' Exhibit 2. This is a 1½ inch opening, ⅜ inch wire, and so is that. I didn't measure it, but I know it is. A-24 is one of the specialty types that we get occasionally, which is a long mesh. This is a 1¼ inch between the wires in the short distance and is 4 inches between these two points here, approximately, made out of a ⅜ inch wire. That is what we would term a specialty screen that has been made for a customer's own specifications. This sample is the sample that was made up at the time the screen was made. We have samples of those, and this was one that was made up for that size opening. A-25 is a sample of a screen with a 2½ inch opening with a ½ inch wire and there again this sample has been made up from warp wires that have been used in the screen. It has been made up out of a warp wire. That is 2½ inch opening. A-26 is a 2 inch opening ⅜ inch wire and there again has been made out of a warp wire which would be similar to one in our file there and has been put together and made a sample of. It is identical with the screens of that type that we

(Testimony of Karl H. Kaye.)

make. The wire has actually been the end of a warp wire that went into a screen. A-27 is a screen with a 3 inch opening with a ½ inch wire. It was made for order B-1949, which I believe the date is the early part of 1948. We have the mill order here, and the reason why it happens to be a finished screen, that is a finished screen as we call it for vibrating, the turned [97] up edges and on the other side that is what fits in a vibrating machine. This one was made for a Cedar Rapids vibrating machine. That is the name of a machine, one of the makes of machine, and it is clamped down in a machine by these hooks here and closes in tight. The reason why that is on there is the length of the screen was in error and fitted in 6 feet long instead of 3 feet long, so it was actually made two of them for shipment, and we have the plant copy, but because it was made wrong it never left the plant and has not been sold to anybody else. These types of screens that are illustrated by these wires and these sample screens are accurate examples of the types of screens that we manufacture and sell. They represent quite a wide range. You would have just some openings in between there. I see we haven't gone up to 3½ or 4 inch openings, but it does give you quite a range between 1¼ inch, 1½ inch, 2, 2¼, 2½. It does not represent the entire range of our manufacture. You could have some other openings in there, anything between those. You can adjust that opening to any fraction of an

(Testimony of Karl H. Kaye.)

inch you want to within practicability of the size of your wire.

(At 5:10 o'clock p.m., Wednesday, October 19, 1949, proceedings recessed until Thursday, 10:00 o'clock, a.m., October 20, 1949.)

October 20, 1949, 10:00 o'Clock A.M.

At 10:00 o'clock a.m., October 20, 1949, Mr. Karl H. Kaye was withdrawn temporarily from the stand.

LESLIE UMSTEAD

called as a witness by and on behalf of defendants, having been first duly sworn, was examined and testified [98] as follows:

Direct Examination

In answer to questions by Mr. Catlett, the witness testified:

My name is Leslie Umstead. I reside at Port Blakely, Washington. I recently had occasion to take photographs of a screen in the Olympic Hotel in Seattle. The screen is located on the Seneca side, just opposite the entrance, on the sidewalk level, just slightly above the sidewalk level. I mean to one side of the entrance. It is on the right facing the entrance. It is a portion of the main part of the hotel. I took pictures of that screen. Defendants' Exhibit A-7 is taken from the side, showing the side view of it, where it would have to be taken partly towards it, because if you took it sideways—

(Testimony of Leslie Umstead.)

I don't know whether the grill extends out beyond the building or not, however, I had to take it at an angle to show the curvature of the grill. Defendants' Exhibit A-8 is taken right in front of the grill, from the sidewalk. These pictures accurately show the appearance of the screen, of the grill at that time as much as a camera can take.

Cross-Examination

In answer to questions by Mr. LeSourd, the witness stated:

I have no other idea, as to the purpose to which those screens are devoted, except for the protection of the glass, because being at sidewalk level, I imagine somebody could break the window or open it if necessary.

KARL H. KAYE

Direct Examination
(Continued)

In answer to questions by Mr. Catlett, the witness, Karl H. Kaye, testified:

(Photographs marked Defendants' Exhibits A-29, A-30 and A-31.) [99]

Defendants' Exhibit A-29 is a photograph of the front end of the press, one of our presses, with the die which shows a close-up of the die which we use to form the crimps in our flat top type construction screen, together with two actual wires being crimped inserted right in the die in the action

(Testimony of Karl H. Kaye.)

of being crimped. I am trying to make it as plain as I can. A-30 is a photograph of the same press with the head in the air before it has come down and made the indentation, made the crimp. It is the same press in a little different position. When I say head in the air, that is the terminology we give for the head of a press that pulls up and down. It is the press head that I refer to by the name of head.

A-31 is a photograph of a different press with the die shown and a wire in the die which has come down to make the crimp of a wire for a flat top. The two presses shown in the photograph, or the two punches, are both the same type of a die. One has an angle that we would term an angle on each side. The other has what we term a pad on each side of the main part of the die. That is the only difference. The purpose of the pad and the angle is to hold the wire down and to take out any of the formation of a curvature between the two crimps that normally could form and does form when you are cold pressing, also prevents the wire itself from getting into a natural long arc so that it keeps it flatter, the whole wire.

The procedure in the manufacture of screens is first the wire is rolled, straightened from the coil which it come in from the factory whom we purchased the wire from. When it comes from the coil, it has a very definite curvature of the coil and we do what we call rolling, straighten it. We put it through two rolls that take that curvature out

(Testimony of Karl H. Kaye.)
that is part of it, gets it fairly straight, don't take it all out but part of it out, [100] so that we can take those lengths—they are cut to lengths of the screen we want to make. Then we take those lengths and run them through our press. First the press is adjusted to the size opening we want to make, because it is an adjustable die, ¼ inch, 2½, ⅜, or we can use 7/16 diameter wire, make a different opening out of that or we can use a ½ inch diameter wire, all out of this same die. It is adjustable, so if we are making a screen out of, let's say, a 2 inch opening ⅜ wire, as an example—however, I believe what is in this machine actually is 7/16 wire. We adjust it. The die has to be adjusted first to that opening as far as the distance of the crimps are concerned. Then also the depth of the crimp is adjusted in relation to the size of the wire and also in relation to the distance that we are going to put these crimps in. Then the wire is inserted and it starts at one end and the press is brought down by its power and it makes the crimp. We can use one wire, in the real heavy ones we only put one wire through at a time. On ⅜ inch wire we put three through it at a time, in this press, and 7/16 and ½ we put two through at a time. I think this has two in it—yes, it does.

As that crimp is made, the material is taken ahead to give that opening which we want to make, and the press comes down again. As the press comes down, the die itself, which is what they call —I guess a common term is a bridge die, because

(Testimony of Karl H. Kaye.)

there are two blocks in the bottom and one on the top—that comes down and makes this indentation or the crimp. The pads also come down with it and those are adjustable to the distance apart, because of the difference in the distance of the crimps and also to the depth because of the adjustment of the wire sizes. Then the entire wire is crimped. It is run through the press and is crimped. [101]

After we have crimped sufficient wires for the width of the screen that we are going to make for the warp, the wires are put in the warp. We generally run our warp wires either 3 feet or 4 feet longer than we are going to make for that particular order so that we will not have a normal waste end of about two feet that we couldn't use on this heavy wire. Then the cross wire—the warp wires are the long wires, the cross wire is the shot wire in our language of the industry—that is made identical, the same crimp, the same depth, and everything, as the warp wire, in fact, they are interchangeable. The warp wire or long wires are put into a loom through heddles, which means that one is raised and the other is lowered. It also goes through what we term a reed to get it accurate for the spacing between the wires.

Then the shot wire is put in and it is wove in with one wire up and one down in a basket type of a shape so that the cross wire is inserted in there and it moves ahead for the next one to go in. The heddles shift and the next wire goes in and so on, until the screen is wove up. The punch operates—

(Testimony of Karl H. Kaye.)

the wires are inserted in the punch, in the bed of the punch, and the mechanical part of the punch moves the head up a way from the wire. The punch consists of, as far as the die part is concerned, on the upper part of the die, the top part of the die consists of one die member which protrudes down, and the shape of that die member is tapered in relation to the diameter of our wire so that the formation in the wire will be approximately the diameter of the wire. It is rounded so that it doesn't make the square projection. It would be the male part of the die which comes down and makes the indentation which we refer to as the crimp. That is the center of the operation of crimping. On each side of that projecting unit that comes down on A-29 there is what we [102] call a pad. It is a piece of metal, fairly heavy metal, that is flat and is adjustable to heights by bolts at the top of the die block. There is one on each side of that male die. One on each side of the indentation we have referred to as the crimp. That is what causes the flatter portion here between the crimps, one of the things that it does. Underneath that portion of the die there are two blocks that are spaced so that when the top indentation die comes down, it forces it down between these two blocks, which creates the underside of that curvature. These two blocks are not directly underneath the pads. The pads are spaced farther from it. They are not directly above the bottom members I speak of. The pads are more to the right

(Testimony of Karl H. Kaye.)

and to the left. They are on each side of your crimp indenture, in fact that makes the crimp indenture, your contour, the crimp indenture on the under side. It is the female part of that side, the one on the top is what we normally call the male and the one on the bottom would be the female part of that die. There is a definite relation of the depth of this crimp and the size of your wire. We make a practice of the certain size of wire—it will be 1/32 less than the die under the wire. The top side of your crimp will be down 1/32 less than the total diameter of the wire, and that varies slightly, depending upon the spacing of these crimps, because the farther out you get or the closer you get there will be some variance, but we will run between 1/32 and 1/16, converting that into percentages of the total of the wire that goes in these indentures. The percentage of that, 1/32 to 1/16 less in the crimps, is worked out percentage of the total diameter of the wire. If it is 1/32 inch less on a ⅜ inch wire—this happens to be a ⅜ inch wire we have there—it works out to be 92 per cent of the diameter of the wire, the 1/32. The 1/16 is 84 per cent of the diameter of the wire. That [103] is the transverse wire that is going to lay in this end, also the next one that comes in the other portion. This is a 1½ inch opening, I believe. So, therefore, when we adjust—when a mechanic adjusts his press, he has to adjust the depth to this method that we use so that if he is making this size he will

(Testimony of Karl H. Kaye.)

have a slight variation in depth, and if that was to be a 2 inch or 2¼, approximately from 1/32 to 1/64, or 84 per cent to 92 per cent of the diameter of the wire.

When he adjusts that, he also has to adjust his pads that are on both sides because that comes down a definite distance, and so this pad in order to accomplish what it is there for, to take out any normal curvature that is formed, plus keeping it so that it don't just get quite a bow—in this wire this is a slight bow—but let's say we have quite a bow. These pads do those two things. He has to do that in comparison with the adjustment on the die, because the whole punch comes down that far and stops.

There is no relationship between the depth of this crimp and the circumference of the wire because it is the diameter of the wire. We are concerned about the depth that it goes into, not the circumference of the wire, and that depth presents the plane of what the deepness of that crimp is. In other words, if it is 92 per cent of the diameter of the wire, 92 per cent of that wire lies in the crimp. That is the depth of the crimp, so we establish a plane for that crimp, so our crimp plane will be a line drawn—if it is 92 or 84 per cent of the depth, that is the plane—it is drawn and that becomes the depth of the crimp and establishes that line, when it crosses this coming up, will establish the width of the crimp.

(Testimony of Karl H. Kaye.)

In answer to questions by the Court, the witness testified:

The space in the wire between the crimps is not formed [104] patterned in our dies so as to make it a true arch form. I am positive about that, very definitely. It can't be patterned. The space in the wire between the crimps actually takes on the form of the arch in one size of mesh more than others to the point for this reason. What is actually happening, if I can explain it this way, we have a crimp and this is the crimp where that plane crosses. This would be the end of our crimp right here because it will be a plane 92 per cent, if that is 92, or 84 per cent, but substantially right here will be our crimp. As you make that smaller, obviously the points between your two crimps—here is one crimp and here is the other crimp—the point between those crimps is going to come closer together, but it is the width of the crimps that come closer together. There will still be a little crimp there as you go out further. Extending the distance between the width of the crimp, as you go out farther, they become farther apart. I think we have a very good illustration here. The closer these crimps come together, which is this portion and this portion (indicating) come together in the same size wire, the closer you have an appearance of coming to an arch, because you are coming up this way. The further apart you go you have a greater flatter surface between because the crimps are spread out.

(Testimony of Karl H. Kaye.)

To illustrate that I will take the same size wire, if I may, and this is a 2 inch opening 3/8, same size wire and this is 1½ inch 3/8. This is A-11, is a 2 inch opening 3/8 inch wire. A-13 is a 1½ inch opening 3/8 wire, that is, it is punched for those openings. In this one are crimps, we put these parallel here. We see how much closer our crimps are in the 2 inch. Our width of our crimps, when we hold them up from this point to this point is practically the same, so what we have done is we have moved this one out to this point. When I say this one, I [105] mean the distance between the crimps. We have taken this crimp and moved it out to this point, so we have the same depth of crimp, so we have a result that we have between our crimps from this point to this point a larger surface that is substantially flat, and as we go out farther, if we make this 2½, it become flatter yet. We have one that will bring it back in again.

We have Exhibit A-13 which has crimps in the wire that have been placed for a 1½ inch opening screen. That is the distance between the crimp. The connecting link is the distance between width of our crimp. The width of our crimp is determined by the straight line, plane of the percentage of the depth of our wire. In other words, it will range between 84 per cent to 92 per cent of the diameter of the wire, will determine the depth of our crimp. Therefore, if you draw a straight line and get your plane, then you come where the con-

(Testimony of Karl H. Kaye.)

necting link crosses that line to get the width of your crimp. The width of your crimp are spaced for 1½ inch opening. Therefore, the connecting link that is between the crimps in a 1½ inch opening is shorter than the connecting link in a 2 inch opening of the same wire size, the ⅜ inch wire, and that is shown on Exhibit A-11, which has been punched for 2 inch opening ⅜ wide.

The depth of the crimp in Exhibit A-11 is the same substantially as the one in A-13. Therefore, the width of the crimp in A-11 is substantially the same as the width of the crimp in A-13, because we still have the same depth in both crimps, substantially the same depth, but because the crimps are for a 2 inch opening, the connecting link between the two links is farther apart. I mean the connecting link is longer, and therefore the space between the width of the crimps is farther apart and there is more flat surface on them.

Conversely, I will try—this is Exhibit A-19, which [106] is punched for 1½ inch opening ⅜ inch wire. The depth of this crimp in this wire—in A-19 is substantially the same depth as in A-13, and therefore the width of the crimp in A-19 is substantially the same width as the crimp in A-13, but the crimps are placed closer together because it has been crimped for a 1¼ inch opening ⅜ inch wire. I am referring to A-19, while in A-13 it is crimped for 1½ inch opening ⅜ inch wire. Therefore, the connecting link in A-19 is shorter than the connecting link in A-13, between the width of

(Testimony of Karl H. Kaye.)

the crimps, so therefore the flat surface that appears in A-19 is thereby a little shorter than in A-13. The flat surface in a connecting link in A-19 is a little shorter than A-13 and therefore has a shorter flat surface. In fact, they almost meet. The two widths of the crimp are getting very close together. They haven't met, but they almost meet, to illustrate that.

In answer to questions by Mr. Catlett, the witness stated:

That is the smallest size we make. If the size of the mesh were reduced, your crimps would be closer together. If you make a small opening or mesh your crimps are going to be closer together. Therefore, the distance between the end of the width of the crimps or in the connecting link is going to be shorter and will come to the point where if the wire would stand it, those could actually meet, the two widths could actually meet there, the widths of the crimp.

In answer to questions by the Court, the witness stated:

Because there has to be a curvature of your depth of your crimp, those two meeting would have the appearance that there was a curvature in there, but it would be the crimps meeting together rather than curvature put into it. That curvature appearance be more obvious and convincing in a small mesh than in a larger mesh. Actually, there would be very short flat space there, but [107] it would

(Testimony of Karl H. Kaye.)

be very definitely more obvious in a small opening or where the crimps are closer together in the same size wire than if you spread them out, very definitely, because your flat place, of course, gets smaller when they are closer together and it gets farther apart when you make the crimps farther apart and the lengths of the connecting links longer. There are some manufacturers that would have a die that would hold or control the curvature of the connecting link, we do not have in our manufacturing process.

In answer to questions by Mr. Catlett, the witness stated:

Mr. Palmer, I believe, testified that they made the depth of their crimp approximately ⅔ the diameter of the wire, which would be 66⅔ per cent or thereabouts, it naturally has to vary a little bit off those percentages, but that is basically, I believe, his statement of what the depth of their crimp was. If the depth of his crimp is ⅔ and ours is 92 per cent of the diameter of the wire, when you get to the point of the interlocking point in the middle of our connecting link—we had better scrap the interlocking point for a moment as it is a new term. We can illustrate what we mean by interlocking point with A-26, one of our screens. The interlocking point that I refer to in the connecting link is the point that is in the center between the two crimps where the transverse wire meets it and goes through it, where the crimp in

(Testimony of Karl H. Kaye.)

that transverse wire meets into that connecting link. There is a definite relationship and it is mathematical, it can be figured out very definitely and mathematically. There is a definite relationship between the depth of this crimp in relation to the size of the wire with what it is necessary to have where this interlocking wire comes through.

In other words, our depth, the way we make our screens, [108] is approximately from 84 to 92 per cent on a 3/8 inch wire, so therefore it is the difference between 92 per cent or 84 per cent, or 16 per cent of the diameter of that wire is above the plane. When it comes to the interlocking point, there is that percentage of the diameter that has to go under that wire. The reason for that percentage, the reason why the depth of the crimp isn't the full depth of that wire, is that in order to hold the screen together at all there has to be a pressure there and that difference creates that pressure at this point; otherwise, it would be so loose it wouldn't stay together.

We have only 66⅔ per cent depth at this point. Then you have to give some kind of clearance at the intersection there for that 33⅓ per cent, and that percentage of 33⅓ per cent is a great deal more than 8 per cent. It is 25 per cent difference, approximately, so therefore in order to get that wire under there you have about 25 per cent that you have to have some kind of a curvature or an arc to get it in there, because if it is made flat like our screens are, you couldn't force them in there with that difference. So there is a very definite

(Testimony of Karl H. Kaye.)

mathematical relation to it, and that mathematical relation is the difference between a flat link, connecting link, between the outside of your width of your crimps and a curved link, because you have to get that wire in there. You still have to retain a pressure on the wire. They do in the Palmer patent. They can't take all of the 33⅓ per cent. They do have to retain part of it for pressure, just like we do, to hold it together.

In answer to questions by the Court, the witness stated:

There is nothing in the claims in the Palmer patent which fixes absolutely by any figures or formula the depth of the Palmer claimed shallow dent. There is something in our [109] manufacturing process which rigidly, definitely, unfailingly fixes the depth of the crimp. It is worked out to our own practice in our own plant. On a ⅜ inch wire, we range from 84 per cent of the diameter of the wire to 92 per cent, depending upon the difference in the distance of the length of the crimps apart. There is a little variation there. There is a variation also because of a little difference in the temper of the wire. Wire itself, even made by your formula coming from the same mill, one shipment will be a little different than another shipment. It isn't uniform, so that there is that little variation.

On a 7/16, it will run from 86 to 93 per cent. On a ½ inch wire, it will run from 87 to 94 per

(Testimony of Karl H. Kaye.)

cent. That is the depth we put in there, to the diameter of the size of the wire that is used. If we put a deeper depth in there on a 3/8 wire, if we went to 66⅔ per cent, we wouldn't be able to get it through, because our connecting link is flat. We can only have enough in there so that we get this pressure that is required, the spring pressure that there has to be to hold it together tightly.

We do not put any curvature in the connecting link between the crimps. We do not have any definite arrangement in any manufacturing principle for determining the length of the radius in any curve or arch formation in the connecting link between the crimps.

In answer to questions by Mr. Catlett, the witness stated:

With reference to Mr. Palmer's product, and as to the effect upon the connecting link when the openings are extended to as much as 6 inches, as you extend the distance between your crimps, naturally your percentage—you have the same percentage of your wire, approximately that 33⅓ per cent that we mentioned before or thereabouts, must be extended over a greater distance. [110] The 33⅓ per cent I refer to is the difference between the depth of the crimp that they gave, was approximately ⅔ or 66⅔ per cent. Therefore, you have th edifference of the wire protruding above that, which is 33⅓ per cent approximately. Now, as you extend the distances between your crimps that you

(Testimony of Karl H. Kaye.)

still have only that same proportion of your wire, approximately, to distribute over instead of an inch and a half over, say, 3 inches. So, therefore, your curvature or that difference of that wire is distributed over a farther distance of the connecting links and becomes a less curvature, so that as you keep distributing that out to 4 or 5 inches, you get still less curvature because you have that same approximate percentage of difference in that wire.

In answer to questions by the Court, the witness stated:

There is more than one manufacturing process for the forming of the crimps and the making of the arches or shaping of the connecting links. There is a difference in dies, that is part of the forming of it, Your Honor, and I believe that the plaintiff testified that he used forming dies to form his arch. In that respect, his process of forming crimps and shaping connecting links is different from our manufacturing process. Your connecting link would be formed to the curvature. Ours does not form it to a curvature. Our die does not form it to a curvature. There is a natural curvature that comes into the cold wire when you form it, but it isn't the same, uniform, and therefore we also take that out, but our die does not put it in. But there is, in fact, the plaintiff said, I believe, that he used forming dies to form the curvature as well as the crimp. We do not.

(Testimony of Karl H. Kaye.)

In answer to questions by Mr. Catlett, the witness stated:

Referring to Plaintiffs' Exhibit 8, and explaining the double crimp with reference to the crimps and the connecting [111] links, on a double crimp as in Exhibit 8 there is a warp wire again and a shot wire. The warp wire is made with a slightly less depth of crimp than the shot wire. They are not the same depth. Again there comes into play the fact that in order to get a tight screen—which, by the way, this sample is not very tight.

In answer to questions by the Court, the witness stated:

That is the double crimp screen, Plaintiffs' Exhibit 8. This is one made by them. But it is common practice, ever since screens have been made, in order to make them tight, that your warp crimp wire will be slightly less than your shot crimp wire, and when it is woven together, the pressure created by that difference in the crimp depth makes a tight wire. This one could be a little tighter. I would say, if made correctly with the proper wire, proper spring wire, proper tensile and annealing of the wire, with proper strength and annealing of the spring wire applicable to that type of crimp, that it is possible to get a very tight screen, and my opinion would be that you could get one that would be as tight for all practical purposes as the other types of crimps, with possibly the exception of that shown in the Galloway patent, which has a sort of

(Testimony of Karl H. Kaye.)

lock for its crimp. The Galloway patent is more in relation to a flat top type of screen than a double crimp type of screen. That brings a sharper indentation in the wire where it crosses, so that it has a little more sort of a tighter locking surface.

In answer to questions by Mr. Catlett, the witness stated:

In order to point out as effectively as possible what I mean by the interlocking device which makes the Galloway patent tight, I would like to take as a sample one of the flat top type construction. We have no screen exhibit that exemplifies Figure 3 in the Galloway patent. I just wanted to use a flat [112] top to show what I meant by the interlocking device. If not, I can illustrate it by word, I believe.

(Wire screen marked Defendants' Exhibit A-32 for identification.)

I might add that double crimp screen is a very definite relation in the size of the opening. It would be impractical to use a double crimp construction for a larger opening like 1¾ inch or even possibly 1½ inch, although it can be used on that, but when you get into the larger openings, the double crimp screen as shown in Exhibit 8 does not become as practical as other flat top types. That is sometimes when the flat top comes into being, so in all these types of crimps, there is sometimes a limitation both ways. Conversely, the flat top cannot be used very successfully in some-

(Testimony of Karl H. Kaye.)

thing that is smaller than ½ inch opening, so there is a point by which both of them have their limitations, so you can't just use one description to cover the whole opening.

The definition of the art of a flat top screen is that the crimps are all on one side of the screen, and the other side, therefore, is without any crimps on it and is substantially smoother, flatter. In my opinion, the Palmer patent is a flat top type because the indentures, crimps, are all on one side, and the arch, which is a slight curvature, is on the top side and there is no crimps on the top side so I believe that that follows what I would consider a flat top type of construction screen. That is the definition of flat top which is common in the industry. I would say that the Galloway patent was a flat top type and I am not alone in that. Others have said it, too. I believe in our depositions some others say that it isn't so. The Potter patent is the flat top type. With regard to the interlocking provided by the Galloway patent, in Plaintiffs Exhibit 11, [113] Figure 3, you find that the figures 5 and 5 show the main crimps. Those are the main crimps between the two wires, similar to flat top in, say, A-16. Those figures would be the same as 5 and 5, would be exactly the same as in A-13, the two crimps. Those are the main two crimps and they are all on one side of the screen, as you will notice. Then 7 and 7 are the cross wires that meet in here, and instead of having just this crimp be the sole locking device, where the

(Testimony of Karl H. Kaye.)

transverse wire goes through it, they have put in an additional short crimp in this portion here so that that wire can lock itself in there a little more than right on the surface that is flat with the crimp itself.

Those short crimps are the number 7 on figure 3, and the effect of those is to lock the transverse wire which is number 8 on figure 3. Number 5 is also a transverse wire on the lower side. I would say that would be the lower side of the screen. No, I beg your pardon, I am wrong. I would say that was the upper side and the transverse wires 8 would be on the lower side.

In answer to questions by the Court, the witness stated:

They are both transverse or cross wires, but there is what we call a top side to this screen and a bottom side. Figure 2 illustrates it better. Your top side of that screen, which the gravel would go over, would be the side that shows number 5 and 5 on it. That is the top side. Number 8 and 8 are on the bottom side, and have been locked in tighter because of that additional crimp as shown in number 7. The 7's are the additional. Figure 6 is a cross section, using a comparison of a flat top type of construction with a double crimp. They are two different things. Figure 6 is a different type from Figures 2 and 3. With regard to whether it is different from the plaintiffs' and defendants' double crimp style of screen, that double [114]

(Testimony of Karl H. Kaye.)
crimp style is the same. It only runs one way of the screen. The actual screen is different from a double crimp which is double crimp both ways. It is different from Exhibit 8, yes, because the screen has the one wire, is based on a flat top type of construction, and the other wire is based on a double crimp construction. It is a combination. In Figure 2 of the Galloway patent, the identifying Figure 7 is the extra crimp that otherwise—if that was straight across, you wouldn't have any crimp, as it would be just straight across. Number 7 in Figure 2 is a designation for that crimp. The Figure 7 is the top side of the crimp. You can have a top and bottom side of the same crimp, and that happens to be the top side of that crimp. Figure 6 on the sheet of drawings attached to the Galloway patent is a double crimp, but the opposite way, it isn't a double crimp. The other wires, as in Figure 5, don't show the double crimp. It is a combination. There is no physical sample similar to the illustrative figures 2, 3 and 5 on the sheet of drawings in the Galloway patent.

If we refer to Figure 2 in Exhibit 11, the Galloway patent, the number 3 and Figure 2 is the main crimps in that screen. Number 7 in Figure 2 is the interlocking crimp. The transverse wire, number 8 and 8, is not the locking crimp of number 7. That wire is on top, and the wire shown as Figure 8 and 8 is underneath that wire and there is a crimp there as shown by 7 and 7 instead of—if the crimp

(Testimony of Karl H. Kaye.)

wasn't there, it would be as in our Exhibit A-26. If the crimp wasn't there, it would be without a crimp. It would be similar to this point, the crossing point in our Exhibit A-26. Galloway instituted an additional crimp as shown as number 7 in this Figure 2 at that point, and it is shallower than the main crimps of 3 and 3 to merely put an additional hold on that transverse wire at that [115] point. Figures 3 and 3 would be similar to our crimps in Exhibit A-26, this crimp and this crimp, this crimp on the one side of the interlocking wire and this crimp on the other side. He has put into his patent that additional crimp.

In answer to questions by Mr. Catlett, the witness stated:

Defendants' Exhibit A-32 is a flat top type of screen of one of the smaller sizes. That screen is made by the Abbey Scherer Company, El Monte, California. To illustrate there the interlocking principle, we have two main indentures or crimps at equal distances apart, and the transverse wire is in the center with the same crimp in it. All of the crimps are on one side and when that is put together, the depth of the crimp——

In answer to questions by the Court, the witness stated:

The connecting link in Exhibit A-32 and the connecting link in Plaintiffs' Exhibit 10, Figure 1, is identical, substantially identical. Defendants' Exhibit A-32 involves so far as the connecting link

(Testimony of Karl H. Kaye.)

is concerned the same principle as the Potter patent. In order to make this screen so that the interlocking wires will not move, there again we have a principle that the depth of the crimp must be in relation to the wire.

In answer to questions by Mr. Catlett, the witness stated:

I am familiar with the principle of manufacture of the flat top type of screen. The only type of screens that we do make are those under the principle of the Potter patent. In order to get a tight screen, there will be a definite relation between the size of the wire and the depth of the crimp, and that relation will be smaller—the depth will be somewhat smaller than the diameter of that wire so that when the screen is wove, the transverse wire will have a definite point of contact there with pressure, and the difference between the depth of that crimp and the diameter of the wire creates the pressure [116] at the intersection of the transverse wire. We need the pressure to hold the screen together, first; and, second, to make a tight screen and one that the wires will not move.

It is possible to make a tight screen of the flat top type out of high carbon wire, high manganese content spring steel wire. It is so possible using the cold manufacturing process. I have tested the strength of the screen I have in my hand. In my opinion, it is a very tight screen.

(Testimony of Karl H. Kaye.)

(At 12:05 o'clock p.m., Thursday, October 20, 1949, proceedings recessed until 1:30 o'clock, p.m., Thursday, October 20, 1949.)

October 20, 1949, 1:30 o'Clock, P.M.

In answer to questions by Mr. Catlett, the witness stated:

With regard to the effect the weaving has upon the crimps and upon the link between the crimps, on the double crimp screen the warp wire is—the crimp in the warp wire is a little shallower than the crimp in the cross wire or shot wire, and when that is woven there is a pressure exerted there to hold the screen. The reason why the two crimps are not equal, it exerts a certain pressure where the interlacing wires cross and therefore as that pressure is exerted it can vary that crimp slightly because there is a pressure there. The pressure is necessary to hold the screen together and keep it tight, but it will when you drive up your loom, keep that shot wire in place. It will have a tendency, that pressure, to change that crimp slightly in the warp wire.

I am telling about the effect of weaving. Now, to get that tightness in a flat top type of screen as we make the crimps being the same, both in the warp and the shot wire—[117] there is another way of describing that wire, the weft or the woof. It isn't used for screens of this type as much as it is cloth. In the flat top type of construction, the

(Testimony of Karl H. Kaye.)

way we make it, our crimps are the same in depth, both the warp and the shot wires, therefore the tension that you have to give to the screen, that would be the same as in the double crimp. Where they have changed the depth of the crimp is in the difference between the depth of the crimp and the diameter of the wire, and in our case it ranges from 1/32 to 1/16 shallower crimp than the wire, or in percentage 84 to 92 per cent of the wire is the depth of the crimp.

When the cross wire is driven into that warp and it gets to the intersection just like in the double crimp wire, there is a pressure brought to bear and because you have that slight difference of the size of the wire from your depth of your crimp, and likewise in driving it up, you might at that point very likely distort slightly the connecting link between those crimps similar to what is done in the double crimp wire, so that if it had been flat before, it wouldn't be flat thereafter. That is, there could be a distortion where those wires cross each other. That weaving practice is known to the art ever since they wove wire screens.

I have been in other plants manufacturing these wire screens. I have been in quite a few. I have been in John A. Roebling's plant in Trenton, New Jersey, and Roebling, New Jersey. There is one in Trenton and one at Roebling. I intend to indicate that there are two plants. They don't weave wire screen in both plants, but I have been in both plants. They weave the wire screen in the Roe-

(Testimony of Karl H. Kaye.)

bling, New Jersey, plant, I made that trip every year for the last five years or so, with the exception of last year. In fact, I have been back there just recently. I have been in the Wickire-Spencer Steel Company at Clinton, Massachusetts. I have been in the Newark Wire Cloth Company's plant at Newark, New Jersey. Do you wish me to state just those that apply to this type of screen or general wire cloth plants? I have been in Abbey Scherer's plant in El Monte, California. I have been in the California Wire Plant in Oakland, California. I have been in other plants that weave wire cloth, not necessarily spring steel, such as insect screen cloth, the American Wire Fabrics Company at Mt. Wolf, Pennsylvania, the World Asbestos Company at Paterson, New Jersey, which was weaving insect screen cloth. I have been through the Manganese Steel Forge plant in Philadelphia. Several of these are large manufacturers of the wire screens such as we have in discussion here, including John A. Roebling's Sons Company, for one. Abbey Scherer Company in El Monte is one, California Wire Cloth Company in Oakland is another, Wickwire-Spencer Steel Company in Clinton, Massachusetts is another. Incidentally, that is the division of the Colorado Fuel & Iron Company which they call the Wickwire-Spencer Division. The Ludlow-Saylor Wire Company is a large manufacturer of this type screen. I have not been to that plant. The Olympic Hotel was built around 1924 or 1925, right in that period. The

(Testimony of Karl H. Kaye.)

main part of the hotel was completed at that time. I am familiar with the grating or screen which is on the outside of the Olympic Hotel, the lower floor. That is a type of screen or grill. It is a very heavy grill, probably made out of ¾ or one inch diameter rod, and is made of a similar construction of a flat top type of weave, with the necessarily shallower crimp and the interlocking between the crimps has a rather pronounced curvature in it. Defendants' Exhibit A-7 correctly and fairly represents the way in which that screen looks, taken from a side view. I recognize it as [119] being the screen in the Olympic Hotel that I saw. Defendants' Exhibit A-8 presents a front view of that screen. There is a very definite similarity, in my opinion, between the arch in that screen and the arch in Mr. Palmer's patent.

I am familiar with the state of the art of woven wire screen making prior to August 2, 1932.

In answer to questions by Mr. LeSourd, the witness stated:

My occupation prior to 1933 was that when I left the University of Washington, my principal occupation up to 1931, at the time my father passed away, was in the investment business. That wasn't my first time in the wire screen business. I was in the plant when I was 13 or 14 years old. When I was in high school, I worked there every summer. Other than that, the date when I first went in the plant was in 1931, I would say the latter part of 1931. I can definitely give you the date from

(Testimony of Karl H. Kaye.)

memory. My father passed away on December 3rd, 1931. That happens to be my birthday.

I became familiar with the state of the art prior to 1932, having worked in the plant from the time I was 13 or 14 years old to the time I was 18 years old and then I went into the service; and also having been brought up in a family that my father was associated with the same company since my birth, which goes back to 1899, I naturally over the course of years assimilated some knowledge of the wire weaving business by actual weaving it myself as a helper and a crimper in working in the plant, and also hearing the discussions pro and con about the various arts of making things and also observing some of them.

With regard to whether my experience was simply assisting as a boy in the plant, if you call a man 17 or 18 years old as a boy, why, I would say that I worked on looms and I did actual physical work in the plants. I have set up crimps and I [120] have done actual physical work. My experience at that time was confined to the products of that particular plant, which covered quite a range of things besides just making screens. It covered wire cloth, and not only that but it covered ornamental wire work such as bank grills. I have had experience in plating. We plated a lot of bank grills in those days, electroplated them and wove them and framed them, and such like as that, partition work and such as that. It covered more than just making a wire screen.

(Testimony of Karl H. Kaye.)

I don't believe I testified on direct examination that my firm did not make gravel screens prior to 1933. I may have testified they didn't make them out of spring steel wire, but they still make gravel screens.

In answer to Mr. Catlett, the witness stated:

I have had an opportunity since that date to become acquainted with the state of the art prior to 1932. The shallow crimp was known to the art at that time. The arch was known to the art at that time. We are successful in making screens of the flat top type which do not shift. We do not have any difficulty with the screens that we make and sell on that. Our customers attest to that better than I can, but if a screen is made properly, proper tensions in it, proper depth in the crimp, tightness, the screen is going to give very satisfactory wear.

In answer to questions by the Court, the witness stated:

In our screens we depend for locking on the tightness of the screen and the indentation that is on the interlocking wire. The principle is determined by the depth of our crimp in relation to the size of the wire. The depth of a crimp is determined by approximately a variation of from 1/32 to 1/16 of the diameter of the wire that is used. On a 1½ inch opening, ⅜ inch wire, flat top screen, the indentation or crimp of that screen will be [121] approximately from 84 to 92 per cent of the diameter

(Testimony of Karl H. Kaye.)

of that wire, the balance of it from 16 to 8 per cent, and the reason why there is a variation there that I can't give you, it is always 92 to 84 per cent, is because of the variance of the wire itself, in the hardness and softness of it.

That leaves approximately from 16 per cent to 8 per cent of the diameter of that wire protruding above the depth of the crimp. The wire sets in there. If the crimp is 92 per cent of the depth, there is 8 per cent still above that depth so that when the interlocking wire comes into place when it is woven, and there is also that indentation in that wire, that is that same depth from 84 to 92 per cent of the diameter of the wire, so that that difference of 8 to 16 per cent exerts a pressure against the straight interlocking link, and we rely upon that pressure plus the indentation or crimp that is in the wire itself to hold that in place.

When you get a wider screen, you could only use that if you took that 1½ inch out, and you went clear out to 3 inches or 3½ inch opening, we would use a larger size wire to get a little more strength in that screen than we would a ⅜. You have to balance the size wire, so to speak, with the opening as well. One size wire will not be universal for all openings and make a good tight screen, so we balance it off in different openings, by different size wire, but we use the same basic principle of holding that wire.

(Testimony of Karl H. Kaye.)

In answer to questions by Mr. Catlett, the witness stated:

Exhibit A-30 is a photograph of one of our presses that we use in forming the crimps. This is a photograph of a single punch.

In answer to questions by the Court, the witness stated:

One feature of that press, more than all other features, [122] is emphasized by this photograph and that is the forming die that we use.

In answer to questions by Mr. Catlett, the witness stated:

Defendants' Exhibit A-31 shows a press also that has the main feature showing a die for forming wire for flat tops.

(Die marked Defendants' Exhibit A-33 for identification.)

Defendants' Exhibit A-33 is part of a die, what we call a double die for crimping 1½ inch opening ⅜ wire.

(Die marked Defendants' Exhibit A-34 for identification.)

A-34 is part of this die, the rest of the die, A-33, I believe it is. This is the top part, the male part as you might want to call it, and the other, A-33 is the female part. This being the top part of the die on the top of the press, this fastens to the press by these bolts. I mean Exhibit A-34 fastens to our

(Testimony of Karl H. Kaye.)

press by these bolts. When the press comes down, the wire in A-33, the female part of the die, is also fastened to the bed of the press. The wire is fed through, 3/8 wire is fed through. The press comes down. These are centered so that the press comes down and forms two indentations or crimps at one time. The wire would be laying in here and this forms an indentation and this one forms an indentation for a 1½ inch 3/8 wire. We have shins and pads. These shins are pieces of metal, as we call them, they are there so that they can get some variance up and down to change the depth of the indentation in accordance with the wire.

The flat portions on A-33 forms the bottom side and also has a tendency of flattening out the curve that comes into it naturally when the top comes down and hits on a plate here. By the forming of it itself, it forms a natural curvature in it. That die is not designed to produce any predetermined curvature. [123] It is designed to take it out, not to put it in. That is not the same die as in A-31. 31 is a single punch die and this is a double punch die. I don't believe we have a photograph. We brought the die itself of the double punch.

Our process of manufacture does not produce on each rod a plurality of uniformly curved elongated arches. Our connecting links wouldn't be absolutely uniform. They will be as to length, very closely, but not as to its straightness, if that is what you have reference to. Referring to Defend-

(Testimony of Karl H. Kaye.)

ants' Exhibit A-5 which was attached to Mr. Lippincott's deposition as a sample of the screen being manufactured by Roebling, it is very comparable with our screen, A-21. It is very similar both in depth of crimp and in the status of the links between the crimps.

These manufacturers to which I have referred manufacture screens of the flat top variety. That screen of Roebling's is of the flat top variety. In our manufacture of screens we endeavor to flatten the connecting link because we wish to eliminate as much of the curve above our mean plane as possible. The amount taken out in that fashion can vary because your wire varies a little bit, the hardness and softness of the wire will vary slightly and therefore in one coil of wire, in the same coil of wire.

In using this double punch press, a sort of an arch will necessarily result between the two presses when they come down in a double, more so than in a single with the die that we have. I do not consider that the arch in Mr. Palmer's patent is a desirable feature because it puts a projection above the mean plane that allows it to wear more rapidly when in use and to offset that I do not believe he has enough advantages in it, particularly when he gets out into larger openings. Again, a screen might be better for one or two openings, and not so good for other openings, but we are speaking now, I presume, of the wider [124] range of open-

(Testimony of Karl H. Kaye.)

ings in general. When I mentioned a wide range of openings, we have a range of openings that we go as a manufacturer, 1¼ inch opening ⅜ wire on to 4 or 4½ inch opening ⅝ wire. That plaintiff, I believe, he stated he started this flat top type of construction in a 7/16 opening, if I am correct in that, I may be off a little bit, and then goes out to a 6 inch opening.

My contention is that there is a wide range of openings. Our range of manufacture is less obviously than the plaintiffs' range because he starts at 7/16, and what might apply to inch and a half, in answer to your question of whether the wearing of that portion over a mean plane is beneficial or less beneficial, changes in the different openings as you spread it out. For instance, as you go from a 7/16 opening and you finally get out to a 6 inch opening, you have got quite a range of a continuous arc, because those things become—the indentations become quite far apart on a 6 inch opening, it becomes 12 inches apart. Obviously, he don't use the same size wire on a 7/16 or 6 inch opening, but he still has a very wide spread for his arch and the utility of it, as far as I can see, in my opinion, changes as the openings change. As you get it farther out, there is less utility in an arc.

We claim and I feel that in an 1½ opening screen, as we start on 1¼ inch, that definitely has no definite advantage to one without it, such as ours, because our interlocking wires are very close

(Testimony of Karl H. Kaye.)

together, very rigidly held if made properly. You can make both of them wrong, too. The mere fact that you are talking about making a screen one way or another does not necessarily follow that you have made a good screen either way. You have to first make it a good tight screen in either way.

With regard to the utility of his invention so far as [125] giving support to the transverse wire is concerned, as you get out farther in your opening, you have obviously less support in it because your arch becomes more elongated and less of an arch and there is less support in it, and in a smaller opening I question that you need that arch to support it. We find we don't. We get a good opening, hold its position, because it is close enough together there without any curvature arch, but we do have that difference in our—there is pressure there. There has to be pressure there to hold it together.

Exhibit A-1 is a drawing for a die to make a high low crimp for a 1½ inch hole ⅜ inch diameter wire. He has one that is designated as an old style and one that is designated as a new style. The difference between the old style and the new style is that one apparently becomes more efficient in that they can make more indentations or crimps at one time with a little larger die, and makes a little more indentation. That has a bearing on the state of the art in the period when that was designed. The high low crimp has several different types, shows

(Testimony of Karl H. Kaye.)

that it has been in use. Well, this was designed in 1925 and the date that is on this one drawing here, the old style, is October 27, 1931. It shows that in place of the double crimp that they have changed it to the point where there is a lesser indentation than what would be in an extension crimp and therefore has more of a locking situation, and also demonstrates that there are different circumferences of a crimp made at the same time.

Defendants' Exhibit A-2 is a drawing, there are two here also. One is marked old style roeflat, designed 1932, and new style dies roeflat, designed 1932. The old style shows a drawing of a die whereby four indentations are placed in the wire for a flat top screen. The spacing between the crimps is inch and 1/8 space, .312 wire. It shows in this die a very similar construction [126] of a die that we use, with the male and female part forming the indentation and along the side of the top male part and in the center of the connecting link is a projected piece of metal that takes out the curve that would normally form in that connecting link when you punch it down. This die is not adjustable. They could only make out of it, as far as I can tell here—I don't believe, without going into it further, that there is any adjustable part of the die to make a different opening with a different wire. It doesn't look to me like it, without examining it further.

However, on the new style changes—well, that

(Testimony of Karl H. Kaye.)
is to make a flat top to put on the new style, they have improved their die to the point that what became the top or male part of the old style is now on the bottom of their die, and what was on the bottom is now on the top and therefore when the press comes down, it makes the link between the two crimps, is forced down apparently on a plate on the machine so that as that die apparently comes down the press comes down, the curvature that has been formed is also taken back out again when it finally sets itself down on the die.

Then they have in addition to that what they call the nicker tooth. That is adjustable, and I don't know whether the die is itself. I haven't examined it close enough, but this nicker tooth apparently puts a nick in the wire at the point where the intersecting wire would come in to be woven into that point. That is the difference between the two dies. One is the new style, it is undoubtedly an improvement. I see that the contour of the teeth in the dies are changed a little bit. That is a drawing for one of their dies to make a flat top type construction screen.

Defendants' Exhibit A-3, there are two again. One is new [127] style and one is old style, designed in 1935 for a roeslot screen. Roeslot is a die that makes a long mesh screen; that is, the openings are not square as in the samples that we have here. We have one exhibit here that does have a long slot in it, I take that back. What is the number of our exhibit with the long slot, Mr.

(Testimony of Karl H. Kaye.)

Catlett? I refer to A-24. This die does not make it exactly like that, but that is what we call a rectangular opening between the wires. However, this design of their die shows in place of the one wire that is in A-24, that there are three wires inserted in there, and the portion in between—those are spaced very closely together and the portion between those two sets of crimps are 4 inches. Their terminology of the construction, however, is a roeslot screen. Then the improved style shows 3 wires and the same type of a long mesh screen, changes the die for an improvement over their method of doing it in the old style. It is still made, this, however, is made again in the reverse. The two that were on the top in the old style, the two teeth in the die, are now on the bottom and the three that were on the bottom are now on the top, so apparently it is the same as in the new style, the one that the wire between those crimps lays in, makes them flatter than it appears in the old style, but there are three shot wires that are spaced very close together. The next one is a long straight wire which is in the other drawing 4 inches apart and the other drawing is 2 inches apart.

Defendants' Exhibit A-4 is a flat roeslot design screen which is very similar to A-3, other than they have taken the three wires, because those that appear on the top on one side one time, and the next time there is two, and they have put them in a flat plane with the flat space between the crimps. That

(Testimony of Karl H. Kaye.)

is an improvement apparently over their C but the rest of it is similar design. [128]

These contain principles similar to the principles I am using in my manufacture, very definitely, on A-2 before his new style. The old style die is what we are on, a single die. They are on a multiple die, but the principle is very similar. The teeth are very similar and the block to take out the curvature that normally forms in the wire is quite similar. Ours is adjustable and theirs isn't. Outside of the double die of another exhibit, that isn't adjustable.

In my judgment the Palmer patent does not contain anything which was new to the art, not known at the time when that patent was issued. Manganese steel is a form of a high type of steel.

(Catalog marked Defendants' Exhibit A-35 for identification.)

A-35 is a bulletin No. 230 of the Managanese Steel Forge Company, Philadelphia, Pennsylvania. It carries a copyright date of 1931. That catalog offers for sale and advertises screens made from manganese steel wire. It offers a screen of manganese steel wire and of a high carbon content wire 1 to 1.4 per cent, carbon 11 to 14 per cent, manganese. Low carbon wire is defined as something below .35 carbon, I believe. I believe that came out in the testimony here. You can not make a flat top type successfully with low grade carbon wire. That depends upon the purpose for which

(Testimony of Karl H. Kaye.)

you are to use it. It does depend on what the use is and the size of the rod, of course, that is used. I had reference there to aggregate sizing screens. In my judgment, Mr. Palmer's patent is not an improvement over the Potter patent. I have seen screens manufactured by Mr. Palmer during this period. In my opinion, I do not believe he is putting as much arch in as he did previously back in —screens that I have seen that he made in 1932, '33, or '34, and even some that we have purchased in 1940. I believe his earlier screens had more of an arch in them. [129]

Generally, I would say I cannot determine the manufacturer of a screen on this type by looking at it. I say generally, there is one that I can, an exhibit here, because of certain definite marks that are in the wire itself from the way the machine marks it. That is Exhibit A-32. A-32 is made by the Abbey Scherer Company. This particular size, and the small size, he uses what he calls a press roll instead of a press as we have been discussing it, for the heavier, the stand up press, and on his press roll certain indentations are actually put into the wire, pressed into it, that occur in there on the top side. There are sort of little X's. I happen to know that is on his rolls. I have seen them. In that respect, I could identify his screen unless some other manufacturer used the same type of a roll between these indentations on his press roll. I would not be able to identify any of the other

(Testimony of Karl H. Kaye.)

types of screens that are exhibited here from any markings on the screen. From the character of the article itself, the shape, I couldn't state that it was actually made by the manufacturer. Presumably, we would say that a manufacturer under the Palmer licensee patent—you might be able to identify that, but you wouldn't know whether it was Western Fence or some other licensee, if he had any more. Then I can identify from the marks of the Roebling screen, particularly as against our own. I mean if I didn't see tags on them, I couldn't identify that exact manufacturer.

Cross-Examination

In answer to questions by Mr. LeSourd, the witness testified:

The only type of flat top screen that we make is under the principle of the Potter patent, not the only type of screen. The only type of flat top screen. It is similar to the Potter patent, not under the Potter patent. Similar to the design of the Potter patent. We are not licensees under the Potter patent. That patent has expired. It isn't necessary to take a license to [130] make the Potter patent at this time. Our flat top screen is very similar to the Potter patent. We are making some screens with a double crimp. It is not true that those screens were the screens of less than 1¼ inch opening. We even make some 1¼ inch openings of a double crimp of a certain size wire. In fact, we even make some 1½ inch openings, sometimes, on

(Testimony of Karl H. Kaye.)

certain size wire of a double crimp, but not very often. In gravel screen from 1¼ inch ⅜ wire on out, the larger sizes, larger wire are the flat top type construction. They are all similar in design to the Potter patent. The Potter patent is as flat as manufacturing process can make it flat. Because you first have to define where the arch starts and where it doesn't start there is a—first you have your crimp and then you have an interlocking link or connecting link between the two crimps, and that link, connecting link in the Potter patent is essentially flat, as flat as generally manufacturing process can make it flat. The Potter patent does not have an arch between the crimps. First you establish your crimp and then you have your connecting link between your crimps, and it is made substantially flat.

With regard to whether or not the links between the crimps of Plaintiffs' Exhibit 2 are flat as shown in the Potter patent, well, the Potter patent, the crimps in the Potter patent are a little different than the crimps that we make. You can have a deep crimp or a shallow crimp. We are talking about the connecting link between where the crimp ends and where it begins. As to the difference between the crimps on the Potter patent and the crimps that I make, they can be—you can make them a little shallower or deeper, you can curve them out more or under. Our crimp is a little different than the crimp as shown in Potter's Ex-

(Testimony of Karl H. Kaye.)

hibit 10, the drawing in figure 1. The difference is that our crimp is a little wider, a little more elongated here. I can't [131] actually tell without a ruler and defining how much depth he has here in comparison with one wire off of this, but his crimp comes up more this way and ours spreads out more so that our crimp is from here to here, practically. His crimp comes up more abruptly this way, more of a curve and then goes over. His crimp is not quite as wide as ours, let's put it that way. I don't know whether our crimp is more shallow than the one shown on the Potter patent. I couldn't answer that unless—the crimp don't necessarily have to be more shallow, to be wider. You can still have the same depth in it, but unless I would know the percentage of his depth to the diameter of this wire in this drawing, I couldn't answer that. I know what it is in ours, but I can't answer what it is in this drawing. But you couldn't have the same depth with a wider crimp or a closer crimp and still retain the same depth in it, I believe. On certain size wire, our crimp is within approximately the range of 84 per cent to 92 per cent of the diameter of the intersecting wire. In measuring the depth of a crimp with reference to Plaintiffs' Exhibit 2, first you establish the diameter of your wire. Your depth then is going to be approximately 84 per cent, or in that bracket. Part of this wire from there up to that line that would be drawn—not necessarily a line drawn between the

(Testimony of Karl H. Kaye.)

tops of the two arches on each side, it won't have to be on the top of anything. If this is 84 per cent of the diameter of the wire, then the deph of that, if you take 84 per cent of the diameter of a 3/8 wire, and that depth is that and you draw a line from that depth, you will come out here to a point where we say our crimp then begins, and the connecting link connecting those two crimps together starts. To tell what that point is on Exhibit 2 I would have to draw it all out. I can't do that on—you can't just hold a piece of paper up there and determine that. [132]

In punching our screen for the various openings we run between a range of percentages because of the difference in the wire because each screen isn't identical with the softness or the hardness of wire. There is a little more spring in some, not as much in others of the same wire with the same manufacture, so that we work within a percentage of the diameter of the wire and we set our punch die accordingly. That percentage, as I say, will vary. We set the depth of it. Our crimp is put in there by our die block which isn't changed. If I can use our exhibit where we have a picture of our die block, I think I can explain it to the Court, that that part is in there and the depth then regulates how far that punch is going to make that crimp.

There is a crimp on Exhibit 2. To measure to determine the depth of that crimp you get your mean plane of this wire. We assume that we have

(Testimony of Karl H. Kaye.)

used 92 or 84 per cent. To measure the depth of the crimp on Exhibit 2, you can take the plane out here. You can take the top of the wire. The top of the intersecting wire to the point of the percentage I am telling you and draw that out. To measure on this exhibit the depth of the crimp without assuming an arbitrary percentage, you would take your plane and measure your depth. In answer to the question, "You take the plane across the top of the arches," I said approximately. You can't do it definitely. To determine that from the screen you have to measure this point out here, you have to come into a plane. You can assume, if you want to assume as a starting point the top of the wire. I wouldn't say top of the arch. I said top of the wire, of 3/8 wire and say that we were punching that down to 3/8 thickness. 3/8 wire is a 3/8 wire presumably. We don't punch it down to 3/8 wire because in general practice screen manufacturers know that you have to have some just like in a double crimp screen, one crimp is tighter than the other crimp. [133] You have to get tightness in them and I couldn't measure with a screen like this the difference between that crimp here just by some method out here, but the manufacturer knows what he put into that difference. Otherwise, that screen wouldn't hold together, this screen or any other. That is general practice, has been known in the industry for years. How you as a layman are going to predetermine that, I don't know.

With regard to which points on this wire you

(Testimony of Karl H. Kaye.)

measure the plane in order to determine the depth of your crimp, well, if I were going to do it, I would arrive at it close enough, because I would take 90 per cent of my wire diameter and I would create my plane from that point. You asked me what I would do. I happen to know, and I would do that. Without knowing that, it wouldn't be possible to determine the depth of the crimp absolutely until you arrive by mathematically taking them apart and working with them to see how much we would allow.

I don't believe it is so that in these percentages that I have given, I have simply assumed an arbitrary depth that has no relation to any point on the screen. I gave you percentages that are manufacturing practice, that I happen to know. As to what I am calling a crimp, your crimp starts progressing out after it leaves the crimp and it starts progressing out in a flat plane and therefore that becomes the connecting link. As you bring those crimps closer together in a closer screen, why, naturally, you get them closer. There is the curve in your crimp, and when you spread them out like in other exhibits that are on the floor there, you get a longer connecting link that is flat. I believe I can point out on Exhibit 2 where your crimp stops and the interconnecting link begins. I would say that for all practical purposes, I would say that our link stops approximately here (indicating). I am referring to a point about here. [134] I don't know whether it is ⅔ of the way from the

(Testimony of Karl H. Kaye.)
bottom of the crimp to the highest point of the interconnecting link or not. I would say it would be 80 per cent, 80 or 90 per cent from the bottom of the crimp. It would be from that point that I would make a plane to determine the depth of my crimp. It would be about 90 per cent of the diameter of that wire will bring you down here and then you make a plane and that is the depth of your crimp.

In answer to questions by the Court, the witness stated:

In our manufacturing process as there may be a tendency to cause an arch in the shape of the connecting link while forming the crimp, the arch does not take a position on the same side of the wire as does the crimp, but would be on the other side. That other side would be the same sort of other side as plaintiff claims his arch is from the crimp. Whatever arch or tendency to arch our manufacturing process produced in the connecting link would be on the same side as the arch in the plaintiff's manufacturing process. If there is one, it naturally forms that way when you punch it. Assuming that plaintiff testified that his arch and his crimp are on opposite sides of the wire, our arch and crimp are similarly on opposite sides of the wire insofar as our manufacturing process produces an arch formation or shape in the connecting link. Of course, we take it out again if it is produced but it would be on the opposite side, the

(Testimony of Karl H. Kaye.)

arch would be formed on the opposite side. We don't have an arch, a curved arch in our finished screen, in the process of our die coming down before we take it out the arch is formed in the same plane opposite, the same plane as he does. With regard to whether in the manufacturing process respecting a small mesh screen I would say that our manufacturing process changed the natural shape of the wire from being straight or elongated so far as the connecting [135] link in the wire was concerned, to an arch shape, I said that when you put it in a loom and you warp it up and drove up your cross wires that in a double crimp screen you will change the curvature of this crimp in the warp wires slightly to a little deeper crimp because of the pressure on it. The process of putting the crimp in the wire alone before you become to the process of looming it into a screen produces or tends to produce for the moment an arch on an opposite side of the wire from that side on which the crimp is placed until you take it back out again. Yes, sir. When the press is in the motion of coming down. With regard to the difference between our manufacturing process and the plaintiffs' so far as the two sides taken by the crimp in the arch, the arch is different, but there is no difference in the plane that it is on.

(The witness, Karl H. Kaye, was withdrawn temporarily for the purpose of putting on other witnesses.)

ROGER DUDLEY

called as a witness by and on behalf of defendant, having been first duly sworn, was examined and testified as follows:

Direct Examination

In answer to questions by Mr. Catlett, the witness stated:

My name is Roger Dudley. I reside in Seattle. Defendants' Exhibit A-29 is a picture that I took yesterday down at the Pacific Wire Works to demonstrate the way the press worked. I call it a press, maybe that is not the proper name for it. That is an accurate picture of the press at the Pacific Wire Works. Defendants' Exhibit A-30 is a picture that was taken after the—wire has been punched with that center press. It [136] is the same as in A-29. Both pictures were made at the same time.

The next Exhibit was made yesterday morning also at the plant of the Pacific Wire Works. It is a picture of a different one of the punches. Both pictures are accurate representations of the punches as they appeared at that time.

FRANK J. SEIDELHUBER

called as a witness by and on behalf of defendant, having been first duly sworn, was examined and testified as follows:

Direct Examination

In answer to questions by Mr. Catlett, the witness stated:

My name is Frank J. Seidelhuber. My business is iron works, iron and wire works. I have been in that business since 1906 and make anything in iron, brass, bronze and wire. I have made screens of all kinds, whatever you see there, all kinds of screens. In answer to the question "Are you familiar with the art of screen making as it existed prior to 1932?" I say, I think you can arch any wire. In answer to the question "I asked you if you were familiar with the art of screen making prior to 1932?" my answer is, if you called an arch as the grill at the Olympic Hotel—I am familiar with the art of screen making as it was before 1932. I have seen the grill at the Olympic Hotel, the lower floor. I think it is about 20 or 25 years, something like that when I was here. The Olympic Hotel was built in 1924 or 1925. We bid on that grill ourselves. The grill was put in at that time. When they opened it they had the grill in. I have seen the grill lately. There is an arch in the grill. An arch of that character was known to the art. Defendants' Exhibit A-7 is what I meant. We made them 30 or 40 years ago. [137] That is all

(Testimony of Frank J. Seidelhuber.)

right, I can see. Either one is the same thing as this.

Q. We have to designate it by number. Referring to Plaintiffs' Exhibit 3, I will ask you if the character of the arch—— A. The same thing.

Q. Wait until I finish. The character of the arch in Defendants' Exhibit A-7 is similar to the arch in Plaintiffs' Exhibit 3?

A. It is exactly the same thing. That is again the same thing, just a little more crimp. You just set the wheel a little deeper and you get this effect. I am referring now to A-5. In my manufacturing experience we have made cold screens, screens for any purpose, including gravel screens, but in my time when I worked on wire, we did not have the tempered steel. We just used common steel. That is the only difference I see now. The Exhibit A-7 fairly represents the screen in the Olympic Hotel

Cross-Examination

In answer to questions by Mr. LeSourd, the witness stated:

I made screens like this 30 or 40 years ago. For gravel screens, for elevator doors, elevator enclosures, bank grills. At that time the wire was very modern. With the last 20 years they don't use it any more for ornamental iron work, looks too plain, too cheap. People want something like this aluminum, brass, bronze. As to whether Plaintiffs' Exhibit 8 is the type of screen that I made to which I referred, we make all kinds of screens. We set

(Testimony of Frank J. Seidelhuber.)

the wheel and we punch to dress it up. We make even the different eyes, different openings, this one big, this one small. You can do anything with wire. I made lots of this, yes, sir.

Q. This was the type you were making for gravel screens?

A. No, a little finer, too. This was gravel screen, perhaps, cold screen. Then we made some finer ones, a little nicer. [138]

Q. You mean smaller openings?

A. No, flatter too, not so sharp, you see, but with wire you can make anything. You can dress it up. What you got here, we made. We made all kinds.

The photograph of the Olympic Hotel screen, Defendants' Exhibit A-7, is not quite similar to this. This is flatter, got a longer arch. This is sharp, but you can do that with your crimping wheel. Defendants' Exhibit A-7, the photograph, has an arch over the top and an arch underneath. They are both the same. I think so.

DAVID J. EVANS, JR.

called as a witness by and on behalf of defendant, having been first duly sworn, was examined and testified as follows:

Direct Examination

In answer to questions by Mr. Catlett, the witness stated:

My name is David J. Evans, Jr. I live in Seattle. I am employed by the Pacific Wire Company as

(Testimony of David J. Evans, Jr.)

head of the heavy gravel screen department. Defendants' Exhibit A-14 and the other wires that I see there upon the floor, are from our cross wire rack in our plant, the ends of wires that were used on screens. In other words, we would loom and form our screens and this is one of them. The other ends of these wires were screens. None of these were made up for the particular purpose of this trial. Those have been in stock. Defendants' Exhibit A-29 is a picture of our punch that we use for punching the flat top type screens. A-30 is the same. A-31 is likewise.

In setting up the punch and fabricating our screens, we have the size wire and opening that we know and we set our center punch to a given point whether it is 4 inches or whatever it [139] happens to be for the mesh, and then we make our sample for tightness and looseness of our screen, and if the sample is what we want we progress with the screen. If the sample is not what we want, then we set our punch either lower or raise the top part of our die and make another sample. With regard to whether we measure for the depth of the crimp, that is why we make our samples. We know that if it is too tight or too loose when we make our samples that we have not reached our measurement of 1/32 or 1/16. We could measure, but it isn't necessary in making samples.

(Testimony of David J. Evans, Jr.)

Cross-Examination

In answer to questions by Mr. LeSourd, the witness stated:

I have heen head of the heavy gravel screen department for Pacifiic Wire Works for the past three years. When I say that I make samples, I mean that I put a wire in this press and press it into crimps and then make several of those and work them together to see how they fit. If they don't fit properly, what we do all depends if they are too tight or too loose. If they are too tight, we know immediately we haven't gone far enough on our punch. The wires that we reject are thrown in the scrap. None of the wires that were rejected are here. These wires we have here are from screens we have sent out. They are loom ends. I made most of them myself. When I stated that I adjust my dies, I mean that on our particular punches that we have down there, we have pads on either side and we can govern our depth by those. The pads are adjustable. By moving those up and down that will give you somewhat a shallower or deeper crimp. If you are punching a screen and you get a deeper, shallower crimp, that has a tendency to bear on your arch, if you have an arch. We don't have. It is not necessarily true that if your crimp is shallower, the arch and the link [140] between the two crimps must be higher. The shallowness or deepness of your crimp affects the arch in the wire between the two crimps. If you punch your crimp mark deep, exceedingly deep, naturally

(Testimony of David J. Evans, Jr.)

it would have a tendency, but those pads we have on our machine are set to do away with any arch we may have or thought we had for a connecting link. They touch our connecting link and hold it down flat. That is adjustable. You can adjust that in any way you want to. With regard to whether if you made your crimp deep enough and sharp enough you could have an absolutely flat straight wire across between the two crimps, a lot of that has to do with the temper of your wire, hard or soft As to whether you could do it with hard wire, you are following the way that we punch ours with our pads. If you make your crimp deep enough and sharp enough then you can make the wire between the crimps perfectly flat. We have to set the depth of our crimp according to the hardness and softness of our wire. If you have a hard wire you are not going—you have to go deeper in your punch in adjusting the depth of your crimp. If you have it too shallow, you probably wouldn't make any dent. You have to go deeper on your punch for the hard wire. You can with hard wire go deep enough so as to make your crimp sharp enough to give you a completely flat surface in between the crimps. It has no effect on the wire. Looking at Plaintiffs' Exhibit 10, the Potter patent, and at Figure 1 of that Exhibit, I state that I can make a screen with a perfectly flat link between the two crimps as I see there. I can make that out of our spring steel wire. I can do that by adjusting the pads on our machine.

KARL H. KAYE

Cross-Examination
(Continued)

With regard to whether in Figure 1 of Plaintiffs' Exhibit 10, the Potter patent, the crimp is brought up around the [141] intersecting wire immediately to a plane equal to the top of the intersecting wire, not having any ruler with me or anything to determine that, I would say from the drawing that it wasn't quite to the top of the intersecting wire. According to my eyesight, I would say that it wasn't quite up to the wire. It is possible to weave a screen with the interconnecting links substantially straight in manufacturing practice with a crimp that is very similar to this. I won't say that it would be absolutely exactly like this drawing but very similar to it. I said I couldn't say it could be made exactly like it because a drawing is a drawing and practical manufacturing purposes when you are dealing with rods 3/8 inch, 7/16 inch and the vicissitudes of a spring steel wire, if that is what you are using, or any wire, you can't always do it just like a drawing. It can be done like this drawing as far as manufacturing practical purpose will permit. I said it was substantially like the drawing. Defendants' Exhibit A-32 is a crimp quite substantially like the Potter patent. It is a little wider, but it is quite substantially like it with a straight interlocking wire between the crimps. As to what offers resistance to the slippage of the transverse wire on Figure 1 of the Potter patent, marked A

(Testimony of Karl H. Kaye.)

in the center bottom of the figure—what if anything prevents that wire from slipping across the wire above it—the amount of pressure that is brought to bear, plus the indentation that that wire has that is similar to your warp wire when it hits that point, when it hits where those two wires come. Speaking of Figure 1 of the Potter patent and the intersection in the middle of that figure between the A at the bottom and the A above it, the A above, of course, does not have—that follows right through without any indentation. There is an A in the bottom and that has an indentation in it that is similar to the one that is [142] marked B, but that is the transverse wire at that point. The lower A has a cup in it similar to B. It is prevented from shifting to the left and right as you look at that diagram along the wire above it by the amount of pressure that is on it, prevents it from shifting and it depends upon the distance those points are. This drawing would show to me—I don't know the scale of it, if it is a scale—it would show to me it was a relatively close mesh, small opening, and therefore you have the indentations on both sides as well as the one where it crosses that helps to prevent that from shifting. The pressure will keep it from shifting in practical use. As to whether some of the leading manufacturers have found it necesary to put a notch in the upper wire at that point in order to prevent it from shifting, that is what they term as an improvement over it, only when they get any

(Testimony of Karl H. Kaye.)

certain size opening. We are speaking of A-32. There is is no necessity of putting a notch in this, if you elongate that out to a large opening. There is no necessity of putting a notch in an opening like A-32 to keep it from shifting. They can, but it isn't necessary. I would say that as far as I can determine there is not a notch in Exhibit A-32.

(The wires of Exhibit A-32 are separated.)

In examining the wire of A-32 I would say I see an indentation of where the crimp ends and the other one begins. I see the burl of the point here, yes, and I see this point here. I see no indentation along the bottom edge of the straight wire.

In Plaintiffs' Exhibit 2 the link between the two crimps is not as flat as that shown in Figure 1 of the Potter patent, Plaintiffs' Exhibit 10. Plaintiffs' Exhibit 2 does not have a slight arch. It has crimps and then it comes into a flat point and the crimps are getting pretty close to each other but there [143] is a little flat point there. The crimps slope upwards to that flat point. The crimps have an upward curvature and then it comes into the plane of the connecting link and that is flat, essentially flat. They are getting very close together in a small mesh. I don't know whether this upward curvature is convex and concave. I know the crimp has been indented in the wire on the down side and that crimp has put an indentation in it when the press comes down into the die. I know that this is concave and I know this is convex. As to whether it

(Testimony of Karl H. Kaye.)

is convex upward it depends upon what point you are talking about. It has been put there by a punch going down. That puts it in concave position. If you are looking at the bottom side then I suppose it becomes convex. I would say it is convex upwards toward the flat side of the screen.

As to whether that formation tends to prevent the intersecting wire that crosses under it from shifting from side to side that wire from shifting from side to side is in the flat part. That is in the intersection of the flat part, what is left of the flat part. I would say, roughly speaking, about an inch right up there at that point is left of the flat part. It is essentially flat. That is where those two crimps come up to that point. Nothing is absolutely flat in a wire. I would say that the curve in that wire does not offer lateral resistance to the shift of the wire that crosses underneath it. Looking at the same screen at one of the links or arches between the two crimps, if you have it flat on the top side, it is substantially the same on the underside. There is a little difference because of the thickness of the wire, of course. There is a slight difference. I would say at least one half an inch or better is flat on the underside.

With regard to whether on direct examination I stated [144] that the link between the two crimps is of the same length in a given screen, but that it would not be uniform in curvature or height in the same screen, I don't believe I used the term uni-

(Testimony of Karl H. Kaye.)

form in curvature. I said that we would not have identically the same flatness in every one of our connecting links between the crimps. It will not be absolutely uniform in the same screen. By that I mean there is a little variation in the wire. That depends on how it comes off the coil of wire. There is a variation in the wire. It isn't all the same. I don't know the maximum and minimum limits of that variation because one coil might be one thing and one might be another. Wire is not uniform. I couldn't divide it in that term. If one of these connecting links is higher than another in the same screen, there might be a slightly higher point in it and that point will wear itself off a little bit. I would say that is undesirable in our manufacture. It would be better if it didn't have it in, if we had it absolutely flat, if manufacturing process could make it without that variation, but our wire we get isn't that kind of wire. We haven't been able to get it. We don't ordinarily use two kinds of wire in the same screen. There can be a difference in the same coil of wire from the beginning of the coil to the end of the coil. I wish that wasn't true but that is the way it comes to us. We endeavor to make the length of the wire between the two crimps the same, that is the crimps are the same distance apart. As to whether there may be a longer wire between the two crimps than two others, not necessarily. The crimp, the bottom part of the crimp that goes into the die, we try to make it naturally the same

(Testimony of Karl H. Kaye.)

distance apart. There can be a slight variation in that, even, because of general manufacturing practices, slippage and so forth, and take up in the wire itself in the flow of that material when you press it down in this form, so if you [145] put a calipers on it, and you were getting down to a very fine point of calipering, I would say there would be some slight variation because it just isn't possible, because of that flow of material. There is a point by which it becomes practical and a point by which I can answer your question.

It isn't certain tolerances to which we must make a screen. There are certain tolerances that the gravel user has to come within a curve, if that is what you have. There is nothing that specifies that we have to have a certain tolerance in our screens. That is our own specification, there is no outside specification. We endeavor to build our screen in order to give a certain tolerance of material passing through. We endeavor to make the crimps the same length and the depth the same depth but there is a slight variation because of the wire. We endeavor to come as close as we possibly can with our type of manufacture and our type of die.

In order to determine whether Plaintiffs' Exhibit 2 has a slight variation, I will have to measure every hole very accurately to give you that answer and there are quite a few holes in it, but I will be glad to do it. In looking at it with the naked eye that still doesn't mean that there isn't any varia-

(Testimony of Karl H. Kaye.)

tion. I would say that there is variation visible to the naked eye. To me there is a variation right here (indicating). This hole here is a little different than this hole. There is a little variation here and here and over here. Other than these outside set of holes I believe there is variation. It looks to me like this hole, it might be what is under it that throws me off, but it looks to me like this hole is at variance between this one. It isn't quite the same. I think there is a little variation between some of these openings. I would say there was to my eyes without measuring them. I could give you a more [146] accurate statement if I was allowed to measure them.

In our process of manufacture we cold press the wires. Our screens of the flat top type are made of high carbon commonly known as spring steel wire. Examining Exhibit 10, the Potter patent, and Figure 1 at the underside of that wire that goes across the page from left to right and in particular to the crimp or cup and the underside of the crimp or cup and to the point where that underside straightens out into the straight part of the link between the two cups, I would say there was a fairly sharp corner at that underside point. In Plaintiffs' Exhibit 2 there isn't the like sharp corner because the crimp is a little wider than the crimp in here. It isn't the same, the crimp I am speaking of.

Some of the leading manufacturers have placed a nick in the underside of the intersecting link in

(Testimony of Karl H. Kaye.)

making the Potter screen in order to prevent shifting in some openings; some manufacturers have in some openings.

Referring to the Galloway patent, Plaintiff's Exhibit 11, and Figure 2 on that patent, with regard to the depressions on the top of the wire which are marked with the Figure 6, those depressions are made by the teeth which come down in order to form the arch No. 7.

Prior to 1944 we made in our factory screens with openings larger than 1½ inch. I do not believe we made the flat top type of construction prior to that time. I would have to look at our records. We might have made a certain opening on those but I would have to look at the records. I would say we were not making the same type of screen that we are making today that we call the flat top construction, 1½ inch or over between 1940 and 1944, unless it was on one or two openings and I would have to look at the record. During that period we bought some of Mr. [147] Palmer's screens and sold them. We invoiced them as Pacific Wire screens. I would have to see when we started to use the 4-S which is our trade name for it. I don't know exactly without referring to our records when we started that, but we have never put on our invoices at that time or ever since. We don't invoice a certain particular type of a screen. We call it now Pacific 4-S. Then we would call it a Pacific screen or gravel screen, of certain dimen-

(Testimony of Karl H. Kaye.)

sions. That is all that would go on the invoice. These dimensions and the wire and the full other description of it. We do not make screens of larger than a 1½ inch opening in the double crimp because we find that it isn't as practical to do it when we get into the larger openings. It isn't as practical because you have to insert intermediate crimps. Otherwise your double crimp would be so far apart that you wouldn't be able to hold it together very well, so you would resort to an intermediate or extension crimp. That is, we make them occasionally even in larger openings for a specification, even in a spring wire where a man wants a very light wire that is applicable to a flat top construction. We have made screens of a larger opening than 1½ inch by using extension crimp.

After we commenced making our own screens of the flat top type, if we had used the 4-S trade mark at that time, we would have described them or do describe them as Pacific 4-S screens. There would be no difference in the manner in which we describe these screens on the invoices and the manner in which we describe Mr. Palmer's screens on our invoices. At the time in 1944 that we ceased buying from Mr. Palmer, we had built up a substantial business in those screens, the entire range, it was increasing. It was fair and increasing. After that time we supplied them with other manufacturers' screens as well. We supplied our own manufacture, yes, but like all manufacturers, sometimes they buy out.

(Testimony of Karl H. Kaye.)

When in my direct examination I stated that in our screen we depended upon tightness and the indentation on the interlocking wire, by indentation on the interlocking wire, I meant the same crimp that is on the other wire. That is the crimp. We do not put any notch on the bottom side of the link between the crimps in our screen. We have not arranged with Abbey Scherer as yet for the rights to put in such a notch. It has been under discussion but has not been arranged.

In answer to questions by the Court, the witness stated:

What has been under discussion is not for the meshes that we are already making, the larger meshes, it is for the finer meshes that we are not now making, such as finer than 1¼ inch opening. Our conversations with Abbey Scherer has not been on the meshes that we are now manufacturing. It would range from ⅝ inch opening to 1¼ inch opening.

In answer to questions by Mr. LeSourd, the witness stated:

I have been discussing with them the possibility of purchasing some rolled crimpers which they have designed themselves, no reference to the notch at all. There has been no discussion on the notch at all, if there is a notch in there. In the one that I saw, there wasn't a notch, that I discussed last summer. The discussion that I held with Abbey Scherer on the subject a year ago in May and the

(Testimony of Karl H. Kaye.)

early part of June, and that did not contain a notch. I have had no discussions since. I wouldn't contend that a die couldn't be made to make the other connecting link between the two crimps absolutely flat. I am not a die maker but I wouldn't contend that it wasn't possible to make it substantially straight with manufacturing practice, what you have to contend with in the spring. It wouldn't have anything to do with it if the crimp or cup was brought up on [149] each side of the intersecting wire immediately up to the height of the cross wire. In my opinion, the fact that in the Potter patent the crimp or cup is brought up suddenly to the height of the interconnecting wire has nothing to do with the straightness of the link in between the two crimps.

The Palmer type screen might be better for the smaller openings, 1½, ⅜ has been one that has been very much in prominence that you have brought up. I would say that was classified as a smaller opening of the total range of larger openings running from 1¼ inch to 6 inches. In my opinion, the Palmer screen would be better for that opening of his range; not necessarily better for all of the other types of screens made in that opening, but I said in his range that he makes, the smaller the opening comparatively his screen will be, in his range will be a better Flint screen. I do not mean as compared to a Potter screen. I said better as to his own range of screens, his own range of openings.

(Testimony of Karl H. Kaye.)

I am not testifying that in the 1½ the Palmer screen would be better than the Potter screen.

With reference to Exhibit A-1 which is the drawing of Mr. Lippincott's demonstrating the high low crimp, a screen from that crimp is the same on both sides. [150]

I know bulletin No. 230 of the Manganese Steel Forge Company was a bulletin of that company because that is what it said on it. That is their bulletin. It was handed to me by the president of the Manganese Steel Forge Company in Philadelphia, Pennsylvania, and he said, "This is our bulletin" or catalog. He gave me that in—I can't give you the exact date without looking it up, but it would be, I believe, the third week in—1949, September, 1949. The bulletin was copyrighted in 1931. I don't know when it was printed nor when this particular edition was published.

Redirect Examination

In answer to questions by Mr. Catlett, the witness testified:

I am the president and general manager of Pacific Wire Works and owner of the majority of the stock. With regard to the extent of the crimp, on Exhibit A-29 and Exhibit A-30 is the same press, same material, but the head of the press is in a different position. The depth of the crimp has been put in by the male portion of the top die resting into the bridge die. The depth which this punch comes down to that point, of course, is

(Testimony of Karl H. Kaye.)

adjusted at the time the mechanic sets up the punch to make it for a certain given opening. Now, in setting that punch that many times—I won't say every time, but many times they will take an actual ruler and put across the top of where the crimp, the side of the crimp portion and take a straight ruler across there and determine from that whether they are within the percentages that we have set up to the 32nd and 16th of the diameter of the wire. You can do that when you have the one wire, just the wire itself. It is very difficult to do it when it is woven in a screen, obviously. Then they can determine whether or not they are within that percentage, for instance, on a 3/8 inch wire making an 1½ inch opening, we figure approximately a variation of around 32 or 16 [151] variation in there of the 84 to 92 per cent.

Then the punch, they will set that as accurately as they think they have set it, putting a ruler on it they can measure it from the top side down to that depth. Then they will punch up one rod of a length enough to make a sample screen, which will be the size of about one of these samples here with at least four wires in it running both ways, and can determine quickly whether they have to vary that percentage up or down within that scope, and if the screen is too loose, of course, they are going to loosen up on their top of the die so they don't come down quite so far, so the depth is not quite so deep, so they have more of that percentage

(Testimony of Karl H. Kaye.)

left of the wire to hit that intersection when it crosses the other wire when it is woven in a screen.

If it is too tight, which it could be for practical weaving purposes, they will do just the opposite. They will make it a little deeper and they may make it—unfortunately, sometimes they make two or three samples or more to get that determined, but a mechanic who sets these up all the time, he does set them up very quickly, but I know there are times when we actually put a ruler across it and measure it and do that.

The actual depth of the crimp is, you lay a ruler across the top side of the crimp after that has been set there for that depth and you put your ruler or straight edge across where the indentation has been made, where it first comes up to the flat portion on the top. Then you measure from that to the top side of the crimp in the crimp part, the bottom of the crimp and that will tell you what that depth is. The width of the crimp extends from the point of that plane where your ruler lays straight across, if they have determined that depth to the other side, clear across the crimp to that other side where it meets with that straight line.

(At 5:10 o'clock p.m., Thursday, October 20, 1949, proceedings adjourned until 10:00 o'clock a.m., Friday, October 21, 1949.)

(Testimony of Karl H. Kaye.)

October 21, 1949, 10:30 o'Clock A.M.

Redirect Examination
(Continued)

In answer to questions by Mr. Catlett, the witness stated:

None of our screens have a uniformly formed elongated arch in the flat top type of construction. Our screen is not exactly like the Potter patent. It is similar to it but it isn't exactly like it. Our crimps are wider than the Potter patent. And when our crimp comes up to the connecting link between the crimps, it is similar to the Potter patent in that it is practically flat, that is, the connecting link. The exhibit attached to the Roebling deposition, Defendants' Exhibit A-5, is similar to our screen of the same size of the flat top type. The crimps on that are similar to our crimp, not to the Potter crimp.

In answer to questions by the Court, the witness stated:

With regard to whether there is any set rule by which the nature of these crimps can be made so as to differentiate ours from Roebling's or from Potter's or from the Palmer type of crimp, you can take a wire out of the screen itself and take one out of—for instance you can take a wire out of A-5 and you can take a wire out of an exhibit of ours, I can select on the floor, of the same opening, and you can take a wire out of the same opening of the plaintiffs, and you could measure them very

(Testimony of Karl H. Kaye.)

accurately and could put them alongside of each other if necessary, or you could measure them and draw it out. With regard to the method of forming [153] crimps, Roebling's manufacture and ours is very similar. We have a drawing of one of the Roebling dies here. As to the plaintiff's manufacture, I have to rely on my memory of going back several years. I believe in many of his openings he uses a different die, which is a forming die of the length between the crimps as well as the crimp, also the link. There is that difference. There is no difference in the way that we put the crimp in the wire and the Plaintiff and Roebling. It is done by pressure on male and female dies. The pressure is applied by means of a plunger or punch. As to whether the resulting crimp shall be described as a deep one or shallow one or narrow one or wide one, it depends upon the die itself, the shape of the die, and upon the amount of pressure applied on that punch, and against the wire. With regard to whether there is any difference in the shape of our die, the shape of the Plaintiffs' and the shape of the Roebling die, every die is not the same. The shape—you can make a die that would be closer to make a closer crimp or a wider crimp. You can make that kind of a die.

The distinguishing difference between our screen and the plaintiff's screen is in respect to the connecting link, rather than the crimp. My understanding of the difference as to the connecting link

(Testimony of Karl H. Kaye.)

is that according to the plaintiffs' patent as I have read it, the connecting link is a continuous—if I had the patent I could—a continuous arc, a shallow arc or longitudinal arc, a continuous longitudinal arc. His patent don't say what the curvature is determined by, so I can't take from the patent what he determines it by. The only means of knowledge is just by what the plaintiff stated here in his direct testimony, that the depth of his crimp was approximately ⅔ of the diameter of his wire. Therefore, I presume that when he projects the depth of that crimp out to the interlocking point that he will have to get that curvature [154] in a plane that would make up that difference, or substantially that difference.

I attended the University of Washington. I didn't graduate. I studied higher mathematics in high school. Well, I did take the theory of—mathematical theory of investment, a course in the University, and I did take trigonometery in high school. With regard to any mathematical formula or rule or principle by which the shape of the curvature in the plaintiffs' patent is fixed or determined, the shape of the curvature that he would fix in that connecting link will be in a relationship to the depth of his crimp, and the size of his wire, and to arrive at a mathematical exhibit to see as an example, yes, we could do that. It can be done. In fact, I have a drawing here that could very well illustrate that point, I believe, of the difference

(Testimony of Karl H. Kaye.)

that we made, that Mr. Thacker made this morning. There is no mathematical formula or principle known to me which you could give to an expert and he could take this formula and produce a curve, or an arch in this connecting link in accordance with the claims of the plaintiffs' patent, because the patent as I recall does not give the information what the depth of the crimp is. It says a shallow crimp, so therefore there is no mathematical way you can extend a shallow crimp into a continuous arc. You first have to know what the depth of that shallow crimp and the wire is. His patent doesn't give that formula. You couldn't make a formula out of the patent papers itself, no, sir. You must have these other factors.

I believe it can be worked out mathematically as to the heighth or curvature of the arch in the connecting link if you made a screen of an appreciably larger mesh with a given size wire. You start first and determine from your first sample what the depth of your crimp is. You can determine that in relation to [155] the size of that opening and wire. Then your question is if you extend that out with a larger size wire and extend it out into a larger opening, will there be a relation mathematically. Using the same size wire in an opening and increasing the size of the mesh or opening and you utilize the same depth that was put into the smaller opening and you extend it, it will definitely be—you could make your mathematical com-

(Testimony of Karl H. Kaye.)

putation on your small opening and you would extend that out and you could then mathematically determine your arch using that same base formula of the size of your wire and your depth that you had in the small mesh. If you change the size of your wire as you went out and used a small mesh and a smaller wire, then in your calculations you would have to assume that you were using the same ratio of depth of the crimp in the larger wire that you did in the smaller wire, and assuming that, then you would make your computations of the larger wire and extend it out to your opening and you could mathematically determine the curvature that you wanted to place in it, a curve in it using the same formula.

In answer to questions by Mr. Catlett, the witness stated:

The picture of the roeflat screen in the upper left-hand corner of the cover of R-3 of Plaintiffs' Exhibit 17 shows a crimp that is similar to our crimp. It can be similar to the Palmer screen. That is a flat top type screen. When you say similar, it might be a little deeper than the Palmer screen. The connecting link is flat on the surface, the top surface, these connecting links between the crimps. That is similar to the flat surface on the top of our screen.

(Catalog marked Defendants' Exhibit A-36 for identification.)

(Testimony of Karl H. Kaye.)

Defendants' Exhibit A-36 is a catalog of the W. S. Tyler Company, who are manufacturers of all types of woven wire screens and cloth, Cleveland, Ohio. They are probably one of the largest [156] manufacturers in the United States of this type of material. This catalog was sent to the Pacific Wire Works Company and I first saw it when I was there and it was in our possession when I was there in 1931 as part of our file of catalogs. The catalog itself contains a copyright date 1927 by the W. S. Tyler Company, Cleveland, Ohio. It shows types of screens with the elongated arches.

In answer to questions by Mr. LeSourd, the witness testified:

I didn't say I found the catalog in the files of our company in 1931. It was in our files of catalogs when I was in the employ, when I went back in 1931, as part of our files of catalogs. We have a fairly extensive file of catalogs.

(Mr. Catlett moved the admission of Defendants Exhibit A-36.)

Mr. LeSourd: If the Court please, I will object to the admission of this catalog first on the ground that it is not properly authenticated; and secondly, on the ground that counsel is making this offer without any restrictions or limitations as to the purpose of it. He has in his amended answer cited three examples of prior art which he insisted anticipated the invention here, the Potter, the Gallo-

(Testimony of Karl H. Kaye.)

way and certain developments by one Lippincott. There is no reference to anything manufactured by this company, and consequently the document is inadmissible for the purpose of showing any lack of anticipation, if that is the purpose.

(There followed a legal argument.)

Mr. LeSourd: The law is well settled that the defendant to a suit for infringement must give notice in his answer of any defense by way of prior patent, publications or public use, if he desires to prove any of such defenses to show want of novelty or invention in the [157] patent sued on. Otherwise, such defenses are receivable in evidence only to show the state of the art, and to aid in the proper construction of the patent.

The Court: I understood before these things were mentioned that is what he did offer it for.

Mr. Catlett: Exactly, that is what I did offer it for, to show the state of the art.

Mr. LeSourd: With that limitation, we would have no objection except on the ground it has not been properly identified.

In answer to questions by Mr. Catlett, the witness testified:

The illustrations and information contained in the catalog bear upon the shape of the crimp and the shape of the connecting link between the crimps.

The Court: What is the purpose of your offer of this?

(Testimony of Karl H. Kaye.)

Mr. Catlett: The purpose is to show, if Your Honor please, the prior state of the art.

Mr. LeSourd: For the purpose of construction of the claims of this patent?

Mr. Catlett: It can be for that purpose, yes.

Mr. LeSourd: And that is the only purpose?

Mr. Catlett: The purpose is to show the prior state of the art generally. [158]

Mr. LeSourd: Then I will renew my objection, because as these cases stated, it can be shown only for the purpose of construing the claims in issue and not for any other purpose, and when he says generally, that might include——

Mr. Catlett: That is just bandying words, if Your Honor please, it seems to me. Of course, it is for the purpose of construing the plaintiff's patent we are talking about.

The Court: For that limited purpose and for no other the Court permits this inquiry. For that limited purpose, Defendants' Exhibit A-36 is now admitted.

(Defendants' Exhibit A-36 received in evidence.)

Mr. LeSourd: If the court please, could we have for the record a statement of the limited purpose so that it would be clear in the record?

Mr. Catlett: I am offering it, if Your Honor please, for the purpose of showing the prior art and its bearing upon the interpretation of the plaintiff's patent.

(Testimony of Karl H. Kaye.)

The Court: For that limited purpose, and for no other, Defendants' A-36 is now admitted.

In answer to questions by Mr. Catlett, the witness stated:

On page 80 of this catalog in the lower left-hand corner is an illustration, and under that illustration is this caption: "No. 23 Ton-Cap." In that illustration, it shows a long mesh type of screen with the warp wires showing a short crimp or shallow crimp, I should say, and an elongated arch or crimp passing over [159] the intersecting wires, and then another shallow crimp, and if the illustration continued onward, would have another full arch, which it doesn't. There are a series of those wires showing that shallow crimp and an elongated arch. That is similar to the Palmer patent. There are no other illustrations on that page.

Mr. LeSourd: If the Court please, I move to strike that answer on the ground it violates the very limitations which counsel put on his offer of this document. He asked, "Is that similar to the Palmer patent?" That question doesn't go to the construction of the claims in the Palmer patent, it goes to the very thing the Court just ruled was not permissable with this document.

Mr. Catlett: I think it bears on the construction of the claims. He claims he has an elongated arch, and here is a similar elongated arch.

The Court: The objection is overruled and the motion is denied. Be very careful, Mr. Catlett,

(Testimony of Karl H. Kaye.)
to have in mind in framing each question the exact nature of the limitation of the offer and the Court's ruling admitting it.

In answer to questions by Mr. Catlett, the witness stated:

I find another illustration in there of similar character on Page 82 on the lefthand side of the page, upper corner, is an illustration and the caption underneath it is, "No. 1322 Ton-Cap Screen," and that illustration shows a long mesh or a rectangular mesh where the warp wire has a shallow crimp, a long crimp or arch going over the intersecting wire, a shallow crimp again and then a long crimp if it extended out. There are four of those wires in this illustration. On Page 85 we find several such illustrations. There are four—there are two on the right [160] hand upper part of the page, there are two on the right hand lower part of the page, and the caption underneath the illustrations on the upper right hand page, the one to the left, there being two side by side, is, "No. 392 Ton-Cap," and on the right hand side of that same clipping, under the illustration, "No. 390 Ton-Cap." Above the two illustrations is the notation, "All wire cloth illustrations are actual size."

In answer to questions by the Court the witness stated:

The drawings I was referring to are on the lower right of the page. I don't intend to mention the middle right. The lower right would be the next

(Testimony of Karl H. Kaye.)

two under the left one on the lower right, "No. 514 Ton-Cap." It is a trade name of Tylers that they use in this type of screen. On the right side of the illustration I just referred to in the lower right hand corner is, "No. 38 Ton-Cap." These illustrations on this page show rectangular screens with the warp wires having a shallow crimp and the long crimp and then a shallow crimp or a long arch, if you want to call it arch, or crimp, and that crosses the shot wire at the intersection of the middle of that crimp. That is also true of the two illustrations on the lower page, No. 514 and No. 38. There are differences of the openings, of the rectangular mesh, but the construction is similar in that the warp wires again have shallow crimps and a long crimp or arch, a curvature of the wire. In the center of that, the shot wire is under that long crimp.

On Page 86, on the left hand side, is a group of two illustrations. Underneath the left one, is the caption, "No. 390 Ton-Cap Screen." There again we find that the warp wire—this is a long mesh, rectangular screen—that the warp wire has a shallow crimp, a long crimp and then again a shallow crimp with the shot wire or transverse wire going under the long crimp at its center between the two other shallow crimps. [161]

On page 89, we find three groups of two illustrations each. We find there that the upper group on the right hand side, we find an illustration, "No. 903

(Testimony of Karl H. Kaye.)
Ton-Cap," and there we find a rectangular mesh with the warp wire being again a short or shallow crimp and a long elongated crimp and the cross wire or shot wire being in the center of that elongated crimp.

Then on Page 90, we find a grouping of four screens that are not marked by numbers. They are photographs of screens. One has been sort of laid on part of the other two, forming a grouping, and on the one that is in the upper left hand corner we find there a screen that is a rectangular screen, the opening very close together with the shot wires again having a shallow crimp, and then an elongated crimp or arch and a series of those and several wires shown distinctly in the screen, and the cross wire or shot wire transposing that at the center of those long arches or crimps.

On top of the next one closest to the left, we also have an illustration showing the warp wires closer together with a very long shallow crimp and then a long crimp and then your cross wire meeting it at that point, the difference between the two of them being that the warp wires are closer together, thereby making a narrower opening.

The nicking referred to in the testimony yesterday was known in the art prior to 1932. Nicking anything was common prior to that time. You will make a wire when you make a double crimp which has been used ever since screens have been made. Some of that tooth comes down and forms it. Many

(Testimony of Karl H. Kaye.)

teeth make a nick. The Figure 1 and the Figure 4 of the Galloway drawing in Plaintiffs' Exhibit 11, what appears to be a nick is the indentation on those wires where the die has formed the crimp. That could possibly be construed that the die did make a nick in that wire, or an [162] indentation. With regard to how the nick or condition described by me shows in that drawing, well, as shown in the drawing there is some series of oblong circles, egg shaped circles. However, that is a nick in the wire, it is made by the die. As to whether it is the plunger in the die that makes it, it is the opposite side, the female side. The plunger comes down on the other side of the die. It is the impression made on the wire by the plunger pushing against the wire for the purpose of forming the crimp. I believe that Plaintiff's Exhibit 9, a duplicate of the Ludlow-Saylor screen, made prior to 1932, would disclose a nick. Having pushed aside one of the wires of Plaintiffs' Exhibit 9, there is a nick shown on the wire at where it would normally cross on this Exhibit A-9 on the right hand upper corner.

In answer to questions by the Court, the witness stated:

That nick was apparently put in there to help seat this cross wire. If we had that apart, which we haven't got it fully apart, we would find a quite similar indentation right on the bottom, I believe, of this crimp, and that seats it a little better right in there because of this nick in the

(Testimony of Karl H. Kaye.)

other. If we had the wire completely out it would show. The one I am now speaking of is in about the middle of the connecting link between the crimps. It is on the same side of the wire as the crimp, as the downward extending crimp. It is supposed to be in the center of the connecting link. In this sample, because it is a square mesh. It could be different if it was a different mesh, of course, but in a square mesh of course it would be. That is a different crimp so far as its location and purpose is concerned from the so-called crimps that were previously referred to in the Figures 1 and 4 on the illustrative sheet attached to the Galloway patent.

In answer to questions by Mr. Catlett, the witness stated:

We make the flat top type screen at the present time [163] without nicking. I believe also John A. Roebling's. If we could take that sample apart that we have here in evidence, that Exhibit A-5, I do not believe that if you take that sample apart you would find any nick in that at these cross parts. I cannot see them with my eye on any of the ends. However, in this case, we could pull apart part of that that has been cut that was part of that sample that we have. We could tell definitely without distorting the exhibit.

In answer to questions by the Court, the witness stated:

I would say that the screens made by plaintiff

(Testimony of Karl H. Kaye.)

do not show any analogous or corresponding nick. I don't believe that it is plaintiff's claim that a nick is not needed or might not be good. I believe he states that it isn't a claim under the patent. As to whether if the plaintiffs' patented process forms a lock at that place between the wires without the nick, that feature distinguishes the plaintiffs' patent from the Potter patent and from other screen manufacturing processes which do use the nick, I can't answer that question "yes" or "no" because there are two parts of it, I believe. It isn't true that the plaintiff makes a lock there in all openings, and that is the part of the question that is hard for me to construe in relation to this, because as that opening—there is nothing said in the patent as I recall the claims that as you extend the opening out to a large opening and a given size wire you have a locking effect on that curvature, of that slight curvature of that interlocking link, so your locking effect can vary from a good locking effect, probably, in one opening, and no locking effect at all as that arch gradually gets out. However, with a nick, that nick is in relation to the size of the wire, and it don't make any difference what size opening you have. That nick is placed at that point. The plaintiff has claimed in direct evidence here that nicking is not needed in the plaintiff's process. I don't know whether he claims he has an advantage over the nicking arrangement or not. I believe he has claimed he has a supposed advantage

(Testimony of Karl H. Kaye.)

over the Potter patent with a straight wire, but I don't believe he has made the claim that it is better than the nicking, or it has an advantage over one that has a nick in it. I do not recall that claim has been made. I do recall it on the flat one.

In answer to questions by Mr. Catlett, the witness stated:

The nicking was known in the art prior to Mr. Palmer's patent. It is in this sample we have here and it also applies to the other. We have sold screens to users who require what they call close tolerances, quite a few. We have found our screens acceptable. We have generally not had difficulty with our screens because the intersecting wires slipped. It will be the odd screen. Names of our purchasers where close tolerances is required are a contractor by the name of J. G. Shotwell. He has the contract to produce the sand and gravel aggregate in the first portion of the McNary Dam, and that is at McNary, Washington, and Umatilla, Oregon. It is going across that river. We are supplying this contractor with Pacific 4-S screens for his aggregate segregation, and some of the sand segregation also in his main plant or plants. He has a direct contract with the United States Engineers. The specification that job with the Engineers in relation to his sizing, is one of the most rigid in the country. We supply him from small openings on through to the larger openings, his 3¼ inch opening ½ inch wire. It has a range of sizes that are of

(Testimony of Karl H. Kaye.)

the flat top type only as we manufacture them, not the finer ones that are double crimped, but the flat top only. We are supplying them in sizes running from 1⅝ inch opening ⅜ wire to 3¼ inch opening ½ inch wire.

At the early part of his operations, naturally an operation as big as the McNary Dam is quite a feather in the cap of a manufacturer to have his screens used. The contractor, on the other hand, because of the size of the job, he tried out different screens and different manufacturers' screens in the early part of it. I visited the plant in the latter part of—a few days before the 4th of July, 1949, this summer, went over the plant with him. I had an opportunity to see our screens, other screens in evidence at the plant that had been bought from other manufacturers, including the plaintiff's screens, and at that time he had purchased a substantial number of our screens up to that time, and at that time the contractor, Mr. Shotwell, in the presence of his own superintendent and myself, made the statement that from here on out he was using Pacific 4-S screens exclusively on that job. We have since, of course, sold him his requirements for the main gravel plant.

In answer to questions by the Court, the witness stated:

The difference between Pacific 4-S flat top screens now being used at the McNary Dam and the plaintiff's patented screens is ours has a straight connecting link between our crimps, and also I want

(Testimony of Karl H. Kaye.)

to point out that we do not have a nick where the cross wire goes. With regard to whether in that respect it is just like the plaintiff's, the absence of the nick is just like the plaintiff's. That is what I wanted to bring out, that you could make a flat top type of screen using a substantially straight connecting link between the crimps and also produce a screen that will give satisfaction to customers and also keep to exact sizes. Our crimp may be a little deeper than the plaintiff's. I woudn't know without being able to examine all of his openings, the plaintiff's openings. I haven't those at hand to examine them, but our crimp is probably—I can arrive at it from a formula that the plaintiff gives in Court. Our crimp is a little deeper [166] because we go up to approximately within a 32nd to a 16th of the diameter of our wire, while the plaintiff stated that his depth was guided by about ⅔ of the wire size, being the depth of his crimp, so that is the only basis that I could form. I have no other samples here that I can compare it with in all of the range of openings that I am speaking of.

In answer to questions by Mr. Catlett, the witness stated:

You cannot accurately measure the depth of a crimp on the screen itself. It is very difficult. You can very easily measure it on a single wire. In fact, the practice to measure in double crimp, any kind of wire cloth or screens, is to remove a wire or wires and measure the crimp from there.

(Testimony of Karl H. Kaye.)

Recross-Examination

In answer to questions by Mr. LeSourd, the witness stated:

With regard to whether we form the wire in plaintiff's exhibit 2 so that it proceeds from the bottom of the crimp to the top of the link without a sharp bend, I don't know your definition of a sharp bend. A sharp bend can vary, of course. If you will first give me the definition of what a sharp bend may or may not consist of, then maybe I can more intelligently answer your question. I think you first have to determine that, because it might be quite relevant. We do not make as sharp a bend as in the drawing of the Potter patent. With regard to whether in forming the wire that subject to the limitations imposed by the shape of the wire as it comes from the bottom of the crimp up to the top of the link, we make the top of that link as flat as possible. No, I don't know how flat as possible it can be made. That is an engineering principle. We are making it as flat as our present dies make it. There can be improvements on it. The fact of the matter is, I would like to submit the same size opening and another exhibit here. No we do not make it as flat as possible. [167] We can and are making it in another die flatter, a little flatter. The flatness is extended a little bit, I should say. We do not make these links as flat as possible. You asked me if this link in Exhibit 2 was as flat as we could possibly make it, and I said

(Testimony of Karl H. Kaye.)

that it is the flatness with one of our other dies in the same opening, does prolong that flatness more pronounced and longer in flatness. With regard to the screens made for the McNary Dam, we make them as flat as our present dies will make them. With our present dies as they are designed, we are making it as flat as our present dies will make it.

(At 12:05 o'clock p.m., Friday, October 21, 1949, proceedings recessed until 1:45 o'clock p.m., Friday, October 21, 1949.)

October 21, 1949, 2:15 o'Clock, P.M.

Recross-Examination
(Continued)

In answer to questions by Mr. LeSourd, the witness stated:

With regard to the question "Is it your testimony that in your flat top screen you are making your link as flat as possible in view of the shape of the wire as it comes up from the bottom of the crimp," there are factors in there that I can't answer "yes" or "no." The factors of the wire itself, the hardness or softness of the wire. We are attempting to make it with our present dies as flat as we possibly can with the type of wire that we are now purchasing. We are making it as flat as we possibly can and still bring the wire down under the next intersecting wire without a sharp bend such as is shown in the Potter patent. That is true with all of

(Testimony of Karl H. Kaye.)

our flat top screens, if you have reference [168] to the Potter patent as the figure is shown in the drawings.

Not all of the screens we have sold to the McNary Dam are a flat top type. We have been selling a more complete range. Not all of them are flat top type. These screens sold to McNary start at 1⅝ inch opening ⅜ wire, and runs not every opening, but the largest is ¾ inch opening ½ inch wire. The screens sold to McNary project within those ranges are flat top type construction.

With regard to whether the screens I pointed out in Exhibit A-36, the Tyler catalog, are the same on one side as the other, the screen itself—well, I would say they were not, because of certain conditions that exist on them. They have on the top side which they normally use as a top side, they have put it through a roll and flattened some of the sharp part of the transverse crimp and it does get a little of the longer crimp. That would not hold true, probably, on the bottom side. I can't see it but I don't think it would hold true on the bottom side. The screen is exactly the same on both sides unless one side has been later rolled.

Lippincott's deposition and drawings do not show that they are putting a nick in all of their screens. It shows that they have designed a die to put a nick in them. It don't mean for every opening. I wouldn't say it said that. By opening I mean mesh. Mesh or opening.

(Testimony of Karl H. Kaye.)

Redirect Examination

In answer to questions by Mr. Catlett, the witness stated:

The flat top screens which we furnish McNary Dam do not contain any nicks where the interlocking wire is. I am thinking of the screen that has the flatter top, so far as the connecting link is concerned, and am referring to the contact underneath that straight connecting link. There are samples in an exhibit that [169] are the exact openings. Referring to some of those wires that are the same size as the McNary screens, here is one here, A-22, 3 inch opening ½ inch wire which we furnished them. There is no nick in the underside of this wire where this meets in the screen or in any screen that we make or ship to McNary Dam or anybody else, and that surface, these points here in that opening from the crimps to the opening are substantially flat. I don't think there is a larger one but there might be an intermediate one. I was trying to get the exact opening. I have the same opening in a slightly lighter wire. That isn't exactly the same wire size. A-12 is a wire that is crimped for a 1¾ inch opening, ⅜ wire. We have supplied 1¾ inch, ⅜ and also 1¾ inch, 7/16 to this contractor. There is no nick on this wire in the point which would be the center of this connecting link, which would be here, to impede that wire that is in the center of the connecting link, the crimps and ordinary link begins, which is substantially flat.

(Testimony of Karl H. Kaye.)

There is a nick in the bottom or trough of the crimp formed by the plunger.

If Mr. Palmer were making a screen with as wide a mesh as Exhibit A-17, 2¾ inch, 7/16, his arches naturally have to become more flattened, and the wider apart your crimp, the connecting link which is after has to be flatter. The flattening out of his arch lessens very materially any possible locking of the transverse wire. If he got out to a longer link like his 6 inch, he would have none left there, practically get to a straight portion where the transverse wire meets.

We have furnished screens that some have gone to the Hungry Horse Dam in Montana this year. We also have furnished to operators who have been getting out sand and gravel for the Reclamation Department in the Coulee Dam for the canals. They all are under rigid specifications. We also have furnished, contractors [170] who are getting out ballast for railroads. They all have flat top type screens, the big part of the screens that they purchase.

(Defendant's Exhibits A-7, A-8, A-29, A-30, A-31, A-32, A-33, A-34 and A-35 were received in evidence.)

In answer to questions by Mr. Catlett, the witness stated:

Defendants' Exhibit A-28 is the mill copy of our order B 1949, which went to the plant for fabrication. With reference to screen sections, one of

(Testimony of Karl H. Kaye.)

which is Exhibit A-27. It states that it was made, completed on February 6 at 11.8 in the morning on February 9, 1948, and that on February 10, 1948, it shows a cancelled mark, and with an attached memorandum, supplemental orders, it was cancelled, and other correspondence of why it was cancelled and that the size was wrong. It was ordered by the Westfell Equipment Company, Portland, Oregon, to be shipped to the Springfield Sand and Gravel Company, Springfield, Oregon.

(Defendants' Exhibit A-28 received in evidence.)

LOREN THACKER

called as a witness by and on behalf of defendants, having been first duly sworn, was examined and testified as follows:

Direct Examination

In answer to questions by Mr. Catlett, the witness stated:

My name is Loren Thacker. I reside at Port Blakely, Bainbridge Island. My present employment is as production manager of Pacific Wire Works. I have been in that position approximately five months. I have under me the manufacturing of these wire screens. I had something to do with the selection of these single wires here, A-9 and 10 and on up. They came from our racks we used to hold the loom ends left from previous orders

(Testimony of Loren Thacker.)

that have been woven up and shipped. They were not made up in any way for the purpose of this trial. They are out of stock. They are right [171] out of our regular stock of loom ends, right out of the racks.

I had something to do with the making up of Plaintiffs' Exhibit 2. The order came through my office and because of the small size of the screen it was made up from loom ends. I directed the matter of making this screen up with loom ends with the spring steel foreman. That screen was made from these double dies that are just behind Mr. Conant there on the floor. I don't know the number of them.

(Invoices marked Defendants' Exhibit A-37 for identification.)

Defendant's Exhibit A-37 are the office copies of an order for making up a screen of 1½ inch opening, ⅜, Pacific 4-S wire screen. Its date is 9-21-49. That has attached a letter from the purchaser, Mr. M. T. Bowie. These are the office and file copies of the order under which this screen was made up. The order was actually made from the yellow shop copy. These two pieces were not used in the shop in the making of the order. I recognize them as our documents, documents of my company, and there are an original and carbon of the shop order.

(Defendants' Exhibit A-37 received in evidence.)

(Testimony of Loren Thacker.)

Cross-Examination

In answer to questions by Mr. LeSourd, the witness stated:

As to whether if I had several loom ends from my regular stock that were the same size, say 1½ by ⅜, could I weave them into a completed screen, you would have one thing to look for, and that would be that they were both punched on the same machine. The difference would be evident in the markings. The fact that there are slight mechanical differences in those separate machines and in those separate dies might make it difficult to weave them. If they were from the same die you could weave them. I can tell by looking at a wire which die it is from. Exhibit A-13 is one [172] made from our new punch. It is a 40-ton punch. It is described in one of the photographs that have been brought in here. I don't know how else to explain it. This is a single die. The other one is a double die. This is from a single die. A 16 is made from the double die. I wouldn't say it would be impossible to weave the screen with those two rods. I don't mean to say it would be impossible. I mean to say you probably wouldn't. I think you probably could satisfactorily. We don't normally, but I would say you could. Since these two are the same openings, that means it would be the same distance between the crimps. If the openings are the same, the rods are the same size. These are not

(Testimony of Loren Thacker.)

the same openings. You could not weave a screen with those two rods if they are not the same opening. These are not of the same opening. I would say from the appearance of it and the measurement I made of one crimp that it is not of the measurement of one and one-half by 3/8.

GEORGE HEYER

called as a witness by and on behalf of plaintiffs, having been first duly sworn, was examined and testified as follows:

Direct Examination

In answer to questions by Mr. LeSourd the witness stated:

My name is George Heyer. I reside at 5936-44th Avenue Southwest. At the present time I am a repair man for electrical appliances. I have worked for Mr. Kaye, the defendant in this action, starting about 1940 to about four days after the war was over, in the year 1945, that was in August of 1945. I originally worked there in 1929, I believe, right after I graduated from high school. Then I came back in 1940 and I worked upstairs part of the time, roughly better than a year, and the balance of three years I worked downstairs. When I worked upstairs for better than [173] a year, I made screens, welded. I wove some screens, some of them I formed the wires for, fed them out of the bundle. I worked downstairs for the next three years. Downstairs they have three weaving ma-

(Testimony of George Heyer.)

chines operated by power for making ordinary small mesh wire cloth. I operated all three machines.

My father was formerly employed by the defendant. He was a foreman for 24 years. I am familiar with the screen that Mr. Kaye sells that he calls his Pacific 4-S flat top. Plaintiffs' Exhibit 2 is of the type to which I refer when I speak of Mr. Kaye's flat top variety. I know of my own knowledge that Mr. Kaye made screens of this flat top variety prior to December of 1944. I personally opened up bundles, cut the wires off with an acetylene torch and straightened the wires out on those screens previous to the time I went downstairs. That would be about the middle of 1942. The work that I described was an incident to the manufacture of one or more of the flat top screens. As to the quantity in which these flat top screens were manufactured at that time, that is a hard question to answer. There was a lot of work during 1941 and 1942 and I have no way of remembering how much was done. There was enough of them that I can say that I remember doing the work on them. There was more than simply an occasional one or two.

I did not spend time weaving flat top screens. I only had worked on one part of it, either cutting the wires out or straightening them. I only worked on part of the formation of those screens. The actual weaving I don't recall doing. Possibly once we bolted it on the bench and drove it together with a hammer. [174]

SAMUEL H. PALMER

called as a witness by and on behalf of plaintiffs, having been previously duly sworn, was examined and testified as follows:

Direct Examination

By Mr. LeSourd:

Q. The Court during the progress of this trial has asked some questions with respect to the length of the radius of the arch of the screen in your invention. What determines the length of the radius of the arch in the screen that you have patented?

A. Well, we——

The Court: If you could just say directly what determines it.

The Witness: The length of the radius must be as long as possible to make the screen as flat as possible and still short enough to——

The Court: You haven't answered that. Try to consider the question and don't go rambling off to something else. Read the question.

(Last question read by reporter.)

Mr. LeSourd: If the Court please——

The Court: It didn't answer anything to the Court. [501*] You may note an exception if you wish. Proceed.

The Witness: What determines the radius of the arch is that the crown of the arch must extend to the bottom of the opposite cross wire, the next

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*** Page numbering appearing at bottom of page of original Reporter's Transcript.**

(Testimony of Samuel H. Palmer.)

cross wire, and eliminate as much of the short crimp as possible, but still have sufficient tension there to give it a spring tension to hold it in place, and it also must be short enough to prevent the cross wire that lays in the convex downward curve of the arch from shifting, to prevent it from shifting.

Q. When you said to eliminate the crimp, to what were you referring, which crimp?

A. To eliminate that sharp bend as shown in the Potter, for the reason so we can use a high carbon steel without fracturing it.

Q. Then you say that the radius must be as long as possible to get it as flat as possible which——

A. And it also must be short enough to prevent the wire that lays under the crown of the arch from shifting.

Q. And you mentioned something with regard——

A. And it should be brought down to the bottom of the intersecting cross wire, and it should be brought down as quickly or sharply, but still not sharp enough to fracture the wire where the shallow crimp that connects the arches together. [502]

Q. Then you say the radius must be short enough to bring it down in that manner without this Potter bend, is that what you are saying?

A. Yes.

Q. You said, I believe, that it had to be short enough to give support against shifting of the transverse wire under the arch?

(Testimony of Samuel H. Palmer.)

A. That's right.

Q. And you said that it otherwise——

Mr. Catlett: I object to testimony by counsel.

The Court: The objection is sustained. If you could get him to answer the first question, I am still ready and willing to listen to the answer. I have not heard it yet.

Mr. LeSourd: In our opinion, if the Court please, the answer he was about to give and did give is the answer that is the definite functional answer in the claim of these patents.

The Court: I think he has rambled around and made some remarks, but has not answered the question. I advise counsel that the Court still feels a direct answer would assist the Court. I do not believe that what has been said does so. This is rebuttal. I think his answer should be direct and to the point.

Mr. LeSourd: That is what the witness is [503] attempting to do, if the Court please. I feel that he has answered the question directly.

Q. In other words, Mr. Palmer, are there three elements that determine the length of the radius of your arch?

A. Yes, there are three elements.

Q. State those three specifically?

A. (1) It must prevent the wire from shifting at the crown of the arch.

Q. That has to do with the longness or shortness of the radius? A. That's right.

Q. Which?

(Testimony of Samuel H. Palmer.)

A. It has to be done with the longness of it, or the shortness of it. Pardon me.

Q. It has got to be short enough to prevent the wire from shifting?

A. Then according to your mesh, it must be long enough, as long as possible without losing that particular leverage.

Q. And what is the third factor?

A. It should be brought down almost—I don't know just how to explain that, but as quickly as possible, but do not eliminate the sharp bend at the bottom of the crimp or the arch of the crimp that joins the two arches [504] together.

Q. And that has to do with the longness or shortness?

A. That has to do with the longness of it.

Q. You mean it must be long in order to bring it down in the manner you speak of, or short?

A. It must be as long as possible, but still short enough to bring it down not too rapidly, but as rapidly as you can without necessitating that sharp bend as shown in the Potter patent at the bottom of the next cross wire.

Q. There was some testimony by Mr. Kaye to the effect that you had stated that your crimp is of a depth of ⅔ of the diameter of the intersecting wire. Did you ever state such a thing?

A. No. I think my intention was to say the crimp was about ⅔ of the radius of the wire, the inside of the crimp is ⅔ the radius of the wire.

(Testimony of Samuel H. Palmer.)

Q. Of the intersecting wire? A. Yes.

Q. Is that the depth of the crimp or the radius of the crimp?

A. That is the radius of the crimp.

Q. So that your statement was what?

A. Well, the crimp is brought up in a gradual——

Q. With reference to this 2/3 business. What is this 2/3 business? [505]

A. It is approximately 2/3 the radius.

Q. What is approximately 2/3 the radius?

A. The inside or concave of the arch.

Q. What arch?

A. Of the crimp, is approximately 2/3 the radius of the wire.

Q. Of the intersecting wire?

A. In other words, we grind that punch about 2/3 radius of the wire and that determines the radius of your arch.

The Court: Does he mean radius of the wire or does he mean diameter of the wire?

Mr. LeSourd: The radius of the wire, if the Court please. That is what we are trying to make clear.

The Court: You have not, and I am trying to keep you abreast of the Court's difficulties. That is one object of my making these statements. I was hoping it could be done on rebuttal.

Mr. LeSourd: That is what we are attempting to do.

(Testimony of Samuel H. Palmer.)

The Court: I advise you it has not been done yet and I appreciate any assistance.

Mr. LeSourd; May I inquire whether from the witness' testimony it is clear—— [506]

The Court: There isn't anything about his testimony on rebuttal up to this time which is clear to me. I would be glad if he could give some information about what it is that controls the formation of that arch, what determines its size, what determines how slanting or curving the degree or height of the curve, or generally, the shape of the arch in the varying sizes of meshes, and in the varying sizes of the wires which are used in making the screen, anything that would tend to establish a fixed principle which enters into the formation of that arch.

Does he have a positive, definite, rigid mold into which he forms and bends and shapes the wire, or is it merely an arch or parts of an arch which are formed as and only as the screen is woven, without reference to any fixed, limiting molding or forming die? Those are some of the questions that are in the Court's mind, and I have tried to bring them out during the trial, and they are still unanswered in my mind.

Mr. LeSourd: I realize that fact, and it was the purpose of my first question to answer that question, and I thought that the answer is self-evident in the patent, which fixes the radius of that [507] arch, was what Mr. Palmer has testified to in that

(Testimony of Samuel H. Palmer.)

it wants to be as long as possible and yet must be short enough to come down underneath the next transverse wire without a sharp bend such as in the Potter, and short enough to give lateral support.

The Court: That statement concerns the results desired. It does not concern the method of achieving it.

Mr. LeSourd: If by the testimony we have made clear what I have just stated, then I do not wish to pursue that point further at this time. If I have not made clear from the testimony the statement I just made, I would wish to pursue it further.

The Court: You may not assume that anything is made clear respecting the subject matter of my inquiry or statement.

Q. Mr. Palmer, in making a screen of this type, is it or is it not necessary for the wire which runs one direction in the screen to pass over and then under the wire which runs the opposite direction?

A. Yes.

Q. If you make what we have called the connecting link between the two crimps flat across all the way over or almost all the way over to the next two intersecting wires on each side, then what is the nature of the [508] formation that would be necessary in order to bring that wire down underneath the intersecting wire under which it must go?

A. You would have to arch it sufficient to bring it down.

Q. I am asking you to assume that you are making it perfectly straight across from one inter-

(Testimony of Samuel H. Palmer.)

secting wire across the top of the next and over to the next intersecting wire or close to it. Then what would you have to do with that wire in order to get it down under the wires on each side under which it must pass? A. It must be formed.

Q. Formed in what shape?

A. Formed in the shape of an arch, and that arch must be deep enough in order that you may weave it together, weave the screen together. The short crimp lies in the crown of the arch and that arch must pass through this short crimp down to the bottom of the intersecting wire, and it must be left as flat as possible, but still sufficient arch there to prevent the shifting of that wire, and when that arch is joined to the short crimp which is fastened—which rests under the intersecting wire, it puts a tension on the cross wire.

Q. Maybe I can shorten this. You are familiar with the Potter patent, are you not? [509]

A. Yes, sir.

Q. Do you recall in the Potter patent that the wire runs straight across in this connecting link from one side to the other, is that true?

A. That is true.

Q. How in the Potter patent is the wire brought down from that straight part around the two intersecting wires on each side?

A. By eliminating the sharp bend.

Q. You say that the Potter eliminates the sharp bend?

(Testimony of Samuel H. Palmer.)

A. No, I say that is the way we make the arch.

Q. I am asking you how Potter does it, not how you do it. Does he or does he not put a sharp bend in the wire?

A. He puts a sharp bend in the wire.

Q. Does he or does he not bring down the wire from the flat surface by means of a sharp bend?

A. That's right.

Q. Is it necessary if you do what Potter does and having a perfectly straight wire across between the two transverse wires and over the third transverse wire, if you have a perfectly straight wire clear across there, is it necessary to have a bend like the Potter in order to bring your wire down under the two transverse wires? [510]

A. That's right, it is necessary.

Q. Is it or is it not an object of your invention to eliminate that sharp bend?

A. That is one of the improvements.

Q. That is one of the improvements?

A. Yes.

Q. How do you eliminate that sharp bend?

Mr. Catlett: If your Honor please, I raise the question that this doesn't seem to me to be proper rebuttal.

The Court: I am not going to restrict him, because it may be a very careful and accurate method being employed by examining counsel to try to get at the principles which control this arch, and that is what I want to learn if I can from this evidence.

(Testimony of Samuel H. Palmer.)

Mr. Catlett: I had thought Mr. Palmer went into that on his direct examination.

Q. Mr. Palmer, how do you then eliminate the sharp bend that occurs in the Potter screen?

A. We eliminate the sharp bend by shortening the depth of the crimp and bringing from the center wire—well, to make it short, we just shorten off that sharp bend and make an arch out of it. The material that goes into that sharp bend is spread out into a more gradual bend. [511]

Q. In other words, you bring it up without the bend, is that what you are saying? A. Yes.

Q. In order to do that, in order to bring that wire up from below the transerse wire without the sharp bend, what is necessary with relation to the formation of the link on top?

A. We must bring it up as rapidly as possible but eliminate that shap bend to give as much material as possible to the wearing surface of the screen, which would be the top of the arch.

Q. Then with reference to the length of the radius of your arch, you say that you bring this wire up as rapidly as possible but still eliminate the bend. With reference to the length of the radius of the arch, how do you translate what you have just said into the length of the radius of the arch?

A. The radius of the arch wants to be made as long as possible but still——

Q. Right there, making the radius of the arch as long as possible, would that make the top of the screen—— A. More flat.

(Testimony of Samuel H. Palmer.)

Q. More flat. Does that have anything to do with the quickness with which the wire is brought up from underneath the transverse wire? [512]

A. Yes, it does. We shorten that.

Q. In other words——

A. We shorten the crimp, make more of an angle to it.

Q. The longer the radius, the faster it comes up, is that right?

A. The longer the radius, the faster it rises.

Q. In the Potter where radius is carried to the extreme of a straight wire, what happens in bringing that wire up?

A. You mean what happens to the wire?

Q. Yes, what formation does the wire take in coming up from the bottom?

A. It forms a deeper crimp, more of a cup with sharp bends.

Q. It forms a sharp bend, is that what you want to get rid of?

A. That is what we must eliminate.

Q. So you say you want the radius as long as possible and yet you want to eliminate the sharp bend? A. That's right.

Mr. Catlett: I object to counsel's testifying. He is putting words in the witness's mouth.

Mr. LeSourd: I am trying to clarify the issue by saying what the witness has said. [513]

The Witness: I think that is covered in the specifications of the patent.

(Testimony of Samuel H. Palmer.)

Mr. LeSourd: Just a moment, Mr. Palmer.

The Court: The objection is overruled.

Q. Is there or is there not a limit to the length of the radius of the arch employed by you to eliminate the sharp bend that occurred in the Potter patent? A. Yes.

Q. And how short—what is the limitation showing how short the radius of the arch must be?

A. The radius must be short enough to form resistance to the wire that lies in the center of the convex part of the arch to prevent it from shifting.

Q. Is there any relationship between the shortness of the radius and the sharp bend that occurs in the Potter?

A. Yes, it must be short enough to eliminate some of that bend also. It really has two factors in keeping it down as much as you can, as short as you can, and that is to eliminate that bend, that sharp bend, and also to prevent the transverse wire, or what we call the shot wire or cross wire, from shifting, which is right angles to the arch.

Q. There are various sizes of openings and sizes of wire which have been testified to here. If you apply these factors concerning which you have testified to [514] different sizes of openings of wires, does it or does it not produce a different radius of that arch? A. Yes.

Q. Yes what?

A. Yes, it does produce different radius of the arch.

(Testimony of Samuel H. Palmer.)

Q. In any given size of opening with any given size wire, do the factors to which you testify produce a certain and predictable radius of the arch?

A. Yes, it does. On account of being such a long arch, I might add that sometimes the characteristic of the wire may change that partially, but when you weave it up, it takes its regular form. They all come out the same.

Q. So that in any size opening, in any size wire, can you in any size opening, any size wire, find definitely from the factors to which you have testified what the radius of the arch would be under your invention?

A. You mean the exact radius by inches? We use the same formula on all, because it is impossible to measure it in a mathematical form.

The Court: How would you state the formula? That is what I have been asking about ever since you started to talk about this case. How would you state the formula so that a stranger who never heard of [515] this subject could take that formula and work out an example such as one of those down there on the floor?

The Witness: You set your punch and bring it down to——

The Court: I wouldn't know how to set up a punch. I would need some facts by which to set up a punch. Your statement assumes that somebody already knows a lot about punches and things like that, does it not?

(Testimony of Samuel H. Palmer.)

The Witness: Yes, I presume it did. I wouldn't know just how to explain it to you so you could understand it right away, but this punch must be set down so when the tooth comes down into the die, it brings the wire out in practically straight form according to your die, and the way that arch is regulated, if that is what we want to know, if it is done by adjustments in the die. It brings the sections down when the punch comes down onto the wire, the ends would have a tendency to rise and you have an adjustable stop there or you can have a fixed stop if you change your dies for every mesh.

The Court: Suppose you wanted to mold an arched keystone to put above a door. You are going to make it out of clay and afterwards bake or burn [516] the clay so it would be solid. You wanted to make it on a certain angle, would there be any way you could state a formula for it, and if so, does that principle have any relationship to this arch that you contend you can build under the patent claims?

The Witness: No, your Honor, I don't believe it would.

The Court: Have you any mold that is used by you in shaping your arch that is similar to a mold for shaping brick or clay products or anything of that sort?

The Witness: Those drawings of the dies that we have from Mr. Lippincott, it is made on the same principle with the exception that you make

(Testimony of Samuel H. Palmer.)

the teeth longer or shorter in order to arrive at the particular shape, and that is a fixed die.

Q. In that connection, I might ask a question or two on that particular point.

The Court: You may proceed.

Q. You have observed the dies that were produced by Mr. Kaye in this proceeding?

A. Yes, I have.

Q. In those dies, does he have a method of controlling the curvature of the wire, the radius of the wire and the arch of his screen? [517]

A. That is all we use.

Q. Answer my question. Does Mr. Kaye in these dies have a method of controlling the radius of the arch of his screen? A. Yes.

Q. In your own manufacture, how do you control the radius of the arch of your screen?

A. We control it by the two supports or pads, as he was calling it, or stripper plate.

Q. Is that the same way that Mr. Kaye controls his? A. Yes.

Q. Can you point out to the Court on these dies those particular plates that are used for that purpose?

A. I believe I can. On Exhibit A-3, we do not have these center flat blocks here. It would be replaced with teeth. The center don't mean anything. In principle, it is the same. This is the teeth, the push mark here. This plate and this plate.

Q. Referring to the center plates?

(Testimony of Samuel H. Palmer.)

A. The center plates will control.

Q. Of Exhibits A-34 and A-33?

A. Will control the shape of the arch. Your arch would be laying right—if that came down that far, the arch would be perfectly flat, but if it is fixed so it comes about like this, that would leave a rise in the arch [518] and you set that down until you have the right tightness in your crimp to give a spring tension when they are together, and if it goes down too far, your crimps and arches would be too deep and your wires loose and you would have a loose screen; therefore, it is almost impossible to give a formula, a certain formula for each space.

The Court: Respecting the length of the radius you have mentioned so many times that your link has to be a supposititious elastic strength, does it not? It cannot be a non-elastic radius?

The Witness: Your Honor, it must be fixed because your spring would not spring the same all the time but they can be regulated by the length of your teeth also, or put in a thicker plate if you want to remove the arch entirely, you would put in a 3/16 thicker plate in that one.

Q. You have testified you cannot express a mathematical formula for that radius, but I will ask you whether the three elements to which you have testified do or do not fix the shape of the wire and the radius of the arch with certainty insofar as practical manufacturing operations are concerned?

(Testimony of Samuel H. Palmer.)

A. That's right.

Q. In any screen of a same size opening and same [519] size wire and made out of the same kind of wire which you are testifying to, does the arch vary in the radius?

A. The arch would vary.

Q. To what extent?

A. According to the thick diameter of your wire and the space it must span.

Q. I am assuming that the diameter of the wire is the same size wire and the same size opening. Would or would not the arch be uniform in all screens of that type?

A. Yes, it would be uniform.

Q. Does or does not that result from the application of the factors to which you have testified?

A. Yes.

Q. There has been testimony concerning the nick placed in Potter type screens. Do you have any nick in your screen?

A. Well, we have eliminated the necessity of that nick by using the arch, and that was considered an improvement because the nick has a tendency to weaken the wire at that particular point.

Q. I will ask the bailiff to show you the file wrapper of the patent office which is in evidence as Plaintiffs' Exhibit 18. Mr. Palmer, at one time during the pendency of the patent proceedings on your patent, were the claims in your patent application rejected? [520]

Mr. Catlett: I am going to object to that sort

(Testimony of Samuel H. Palmer.)

of testimony. The roll itself shows and is the best evidence of anything happening in the application for a patent.

The Court: It is in evidence and is it not appropriate to inquire of the written document?

Mr. Catlett: It seems to me we should not enter into oral testimony, and that is what it seems to me this is leading to in connection with this transaction concerning this patent, because of course we would have no knowledge of anything of that sort. The patent of course speaks for itself and if there are any rejections, the wrapper shows it.

Mr. LeSourd: I think Mr. Catlett's objection is premature, because we haven't gotten to any such oral testimony at this time. The fact that the patent claims were rejected at one time is a matter of the witness's knowledge concerning which he can testify.

Mr. Catlett: But the best evidence of what was done to the patent claims is in the patent wrapper.

The Court: I am inclined to think you will not be able to over objection properly ask him to explain why the examiner first rejected and later allowed.

Mr. LeSourd: I did not intend to ask that question, if your Honor please. [521]

The Court: I will see what the inquiry is. The objection presently made is overruled.

Q. Were the claims in your patent application rejected at one stage in the proceedings?

A. Yes.

(Testimony of Samuel H. Palmer.)

Q. I refer to particularly Page 29 of the file wrapper and contents and ask you to state whether that is the rejection to which you refer?

A. That is one of them, yes, that is the one.

Q. In response to that objection, did you take any action?

Mr. Catlett: If Your Honor please, I am going to object. What action he took is evident in the wrapper. I don't think he can establish by oral testimony.

The Court: What do you propose to show now?

Mr. LeSourd: Well, I can come directly to the question I wish to ask, if the Court please.

The Court: It might save time.

Q. I will refer you to Pages 30 to 35 of the file wrapper and contents which set forth an amendment to the application and therein quotes at some length from a letter which states to be from the inventor's own attorney, various facts with regard to this invention. Were the facts which are stated in that letter supplied by you? [522]

Mr. Catlett: Just a minute, if Your Honor please. It doesn't seem to me that is important. Here is a letter appearing in a file from his own patent attorney. It speaks for itself.

Mr. LeSourd: I am asking if he supplied the facts.

The Court: The objection is overruled.

Q. Were the facts that are contained in that letter supplied by you?

(Testimony of Samuel H. Palmer.)

A. Yes, I supplied them to my attorney.

Q. Have you read that letter? A. Yes.

Q. Does the information therein set forth directly and correctly state the facts with regard to the difference between your invention, the prior art and structure and arches?

A. It is all the truth that is in there, yes.

Q. Those are the facts?

A. Those are the facts.

Q. I refer you also to Pages 25 - 28 of the file wrapper, which is an amendment also filed in your proceedings, and contains quotations from a letter with respect to your patent. Were the facts set forth in that letter supplied by you?

A. All of them.

Q. Does the information contained in that letter [523] truly and correctly state facts with regard to the difference between your invention and the prior art and structure and arches?

A. Yes.

Mr. Catlett: I am going to object to that. The witness is on the stand to testify to those things himself that would give me some opportunity to cross-examine him. Here you are just asking him if certain facts of a five and six page letter were supplied by him and whether they are correct. I submit that is not the correct way of taking testimony from a witness, certainly not in rebuttal.

The Court: I will overrule the objection.

Q. Mr. Palmer, I asked you to look at Plain-

(Testimony of Samuel H. Palmer.)

tiffs' Exhibit 2 and state whether or not there is in that screen a lateral resistance caused by an arch to the shifting of the transverse wire underneath?

A. Yes, there definitely is.

Mr. LeSourd: That is all.

Cross-Examination

By Mr. Catlett:

Q. Didn't you testify that you construct your wire to weave into your screen with a forming die?

A. Yes, with a forming die. [524]

Q. Then you use a die which forms your arch, don't you?

A. Not on the large openings, only on the finer ones. We have an extra tooth on the finer ones that gives it a little more kink.

Q. When you say "finer ones" what do you mean? A. The smaller ones, like 7/16, 5/8.

Q. We are talking about the ones from 1½ on.

A. No, we don't have that.

Q. You don't use a forming die above that?

A. We use a forming die, but we don't have that plate in there because we only punch one at a time.

Q. You don't have the flattening plate or what?

A. We don't have the flattening plate on the long ones, pardon me.

Q. But you would have the forming die?

A. Yes.

Q. So that you form your arch?

(Testimony of Samuel H. Palmer.)

A. Well, we form it but not unlike the same principle. I will tell you the difference between our die and Mr. Kaye's. We have a die with the fixed tooth in the center, and the outside edges, where he has these pads, we have fixed teeth and that die is never changed. It is made for a particular opening with a particular size mesh. In other words, we have a die for each opening, separate die. [525]

Q. How do you control the uniformity of your arch?

A. By the length and shortness of those outside teeth.

Q. How do you control it to determine its uniformity so that it rises in a gradual curve?

A. You have a pressure coming into your die from the punch side, and on the die side, which is the bottom, if you want to call it the bottom, you have two teeth and when that pressure is applied to the wire, that extends across these two teeth and the punch coming down with these two teeth, it dents the wire and has a tendency to force the outer side of this die—the wire that extends outside of these teeth in an upward direction, and if your two teeth are set in the proper place, they will prevent that, that the pressure applied with a punch will put the dent in there and make the arch at the same time.

Q. Do you punch from above or below?

A. We punch sideways. Our punch works on a horizontal position, but I am saying bottom and

(Testimony of Samuel H. Palmer.)

top because I thought you would understand it better.

Q. When your punch goes down, if you don't have anything to hold it, it will naturally swing the ends of your wires up? A. Yes.

Q. If you have teeth to hold down ends of the wire, [526] it will produce an arch, won't it?

A. Teeth or stops, yes, it will, and you can regulate that arch by the length of those teeth or blocks, whatever you want to call them.

Q. That natural arch is formed with the punch, isn't it, when this punch comes down?

A. Yes, it is formed by the pressure.

Q. I thought you testified in your direct examination that you had a forming die that you used?

A. Well, that is a forming die, then we have another feature.

Q. What is that?

A. That is a straightening device that straightens the wire for the next operation. In other words, when you are running a wire through the punch machine, it travels every time the punch comes down the distance of your mesh.

Q. By the way, your punch is automatic, isn't it? A. Yes.

Q. Do you know Mr. Kaye's punch is not automatic?

A. Well, that don't make any difference as far as the feed goes——

Q. Is his a hand punch?

(Testimony of Samuel H. Palmer.)

A. Yes, but it does the same operation. Then we have a separate device in the same block that straightens [527] the wire. In other words, we do it all in one operation where he has to pull it through a set of rolls first.

Q. You straighten it before you punch it, don't you?

A. We do it at the same time. The straightening device is ahead, so I would say we form it after it is punched.

The Court: Does that straightening process have anything to do with the amount of the curve?

The Witness: No, it has absolutely nothing to do.

Q. Doesn't it affect the curve at all?

A. No, just so it is more convenient to handle. You couldn't pull the wire through if you didn't, it is too heavy, but we do eliminate one operation there.

Q. Isn't it true that in the die which Mr. Kaye uses, these plates that you refer to take out the arch and flatten it, isn't that true?

A. It should if it was set right, yes.

The Court: In other words, Mr. Kaye's process produces an arch just the same as yours does, only he has a second operation to press out the arch, isn't that right?

The Witness: Your Honor, the press can be set by those pads, as he calls it, and the length of the punch tooth, so when it comes down it will be perfectly flat. [528]

(Testimony of Samuel H. Palmer.)

The Court: So in spite of himself, if he crimps a wire with a punching machine, he thereby necessarily creates a corresponding arch in the connecting link between the crimps, does he not?

The Witness: I don't see how he can do otherwise with the equipment.

The Court: And he is bound to, just as you do, have in the connecting link by the crimping process a formation of an arch unless and until he later or in some other pressing straightens the arch out?

The Witness: That's right. That is where my patent differs from the Potter.

The Court: So does it not follow that there is nothing peculiar or distinguishing in your process of shaping the wire that his process does not do?

The Witness: From the information that I have, I would say no, it is all done on a punching machine.

Mr. Catlett: That is all.

Redirect Examination

By Mr. LeSourd:

Q. Would you state whether or not with Mr. Kaye's dies as shown here that he can regulate the shape of his arch?

A. I would say he could, yes. [529]

Q. How does he do that with these dies?

A. You can do it by putting your blocks a little closer to the punch. That is what holds your wire down the stripper plate and if you let that come up, it will make an arch in it, or if you put them

(Testimony of Samuel H. Palmer.)

too far apart, it will make an arch, but if you bring those up closer together and set them so it will squash it down, you could make them just like the Potter screen. We can do it. I made the Potter sample there on the same machine.

The Court: Take the Potter patent principle, if you did not have an additional machine or press to straighten out the arch under the Potter patent in making the crimps, you would have the same arching process which you have under your patent, would you not?

The Witness: I don't think you would as long as the die is made the way it is. You could by changing some of the teeth in it.

The Court: Making the crimp a little more shallow?

The Witness: That's right.

The Court: The principle is no different, is it?

The Witness: There is no arch in that wire when you put it through the machine, because it is already straight. It is the pressure of the punch coming down and the wires raising up on the outside of the die [530] that would put the arch in it.

The Court: You could with the defendant's press just as effectually and accurately form the arch which you claim is formed by your press as you could by using your press, could you not?

The Witness: I am quite sure we could; in fact, I am sure we could.

The Court: And repeating, in order to avoid having an arch such as you get, you have to have

(Testimony of Samuel H. Palmer.)

an extra function in your die to press the arch out and straighten it out after it forms?

The Witness: If you bring those pads closer together, closer to the punch, you wouldn't get an arch but you would have to lengthen your punch to get it a little deeper, get depth enough so that you could weave the screen together.

The Court: The same thing is true in the Potter patent process, is it not?

The Witness: The Potter is made exactly like that.

The Court: Would it not also be true in the Galloway process?

The Witness: That Galloway is a little different. That can be pressed, but the only bad feature about the Galloway is that it has such short crimps that you [531] can't use it on a high carbon wire without annealing it and heat treating it afterwards. I think that has been stated in some of the depositions, and that would add about 50 per cent, at least 50 per cent to the cost of fabricating it.

The Court: So far as unavoidably producing in the first place by the crimping process a resulting arch in the link between the crimps, the Galloway process would have the same results as your process, would it not?

The Witness: That was one of the amendments in our claim, I believe, to the Patent Office and we show them where we eliminated those three projections.

Mr. Catlett: I object to the testimony as to——

(Testimony of Samuel H. Palmer.)

The Court: I am not talking about projections. I am talking about whether there is any difference in the effect so far as producing an arch is concerned between the Galloway crimp punching process and your crimp punching process.

The Witness: No, it could be done on the same machine by just adding two more teeth.

Q. On that last matter, you say it can be done with the same machine by adding two more teeth?

A. That is on the Galloway.

Q. The Court used the words "forming an arch unavoidably." Is it or is it not possible in one operation [532] by a properly formed die to press in a crimp such as we are talking about here and prevent any arch from forming at all?

A. Yes, very easily. I could refer to one of those drawings and explain it to Your Honor if you wish.

The Court: I will be glad to have him do that after you have finished.

Q. One of Lippincott's drawings, are you speaking of?

A. I don't think it makes much difference. I could show him on any of those.

Q. The drawings of Lippincott's dies?

A. Yes.

Q. A-1—A-4 inclusive?

A. Here is one, Your Honor, that does not have the nick in it. This would be the Potter patent. This tooth comes down here and puts the crimp.

(Testimony of Samuel H. Palmer.)

The Court: Step down to the counsel table. Referring to Defendants' Exhibit A-2 in evidence.

The Witness: This is down through the center of the wire in the press and shows the natural form that is being put into it in one operation. This here is the die, and this is the punch, and this whole member raises up and comes down, and when this comes down, this pushes this wire down in here.

The Court: Thereby forming the crimps?

The Witness: Thereby forming the crimp. This next tooth——

The Court: Immediately to the left?

The Witness: Immediately to the left is the stop tooth.

The Court: To stop what?

The Witness: To stop this wire from raising up and holding it down.

The Court: Stops it from bowing it up and forming an arch?

The Witness: Stops it from bowing up and forming an arch. If you want to make an arch, all you have to do is to shorten this tooth and let the wire come up to that point.

Mr. Catlett: In other words, without the tooth which occurs between the punch, you would have a natural arch formed?

The Witness: Yes, you would have more of a natural arch but that is not a natural arch because it is forced up from this point.

Mr. Catlett: Because the tooth underneath——

The Witness: There is no such thing as a nat-

(Testimony of Samuel H. Palmer.)
ural arch in a straight rod. It has to be put there or it wouldn't be there. [534]

The Court: Is that because of invention, or is that the result of producing the crimp in the wire?

The Witness: That is part of the invention. It prevents the shifting of the wire without putting the nick in it.

The Court: In order to prevent obtaining the arch result, you have to enforce a mechanical resistance to it, is that not right?

The Witness: You are doing that anyway.

Mr. Catlett: He is referring to this other point.

The Witness: This just prevents the arch from forming.

The Court: The arch would form without any inventive arrangement?

The Witness: It would, but it wouldn't be true. We regulate the height of the arch by the length of this tooth. You could do it by shimming up this plate, in fact it has been shimmed. You can see the shims in here.

Q. Would those shimmings regulate the formation of that arch?

A. That's right, and it also regulates the depth.

Q. When you are speaking about Mr. Kaye's dies with the shims regulating the formation of the arch, you [535] were speaking of Defendants' Exhibits A-33 and A-34, were you not?

A. That's right.

Q. On Exhibits A-33 and A-34, by the regula-

(Testimony of Samuel H. Palmer.)

tion of the height of those bars or seams, does Mr. Kaye or does he not regulate the shape and formation of the arch? A. Yes.

Mr. Catlett: Let's be accurate. Calling your attention to these again, does he not by these plates eliminate the arch?

The Witness: No. He would if it was set down so there was just room enough for the wire between here and here.

Mr. Catlett: You mean it would be absolutely flat?

The Witness: Yes.

Mr. Catlett: Isn't the effect of these plates upon that die to take out the natural arch which would form otherwise if it weren't there?

The Witness: If it was thick enough, but that way it regulates the height of the arch.

Mr. Catlett: Isn't the effect of those plates to take out at least a portion of the natural arch which forms?

The Witness: I hope it is, because otherwise——

Mr. Catlett: Well, isn't it?

The Witness: Yes.

Q. Otherwise what?

A. He would have a crooked screen, his arches wouldn't be uniform.

Q. If you left as he calls it the natural arch in it?

A. You wouldn't get it together because it would be too loose.

(Testimony of Samuel H. Palmer.)

Q. Is it or is it not part of your invention that the shape of this arch is regulated in the manner which you just pointed out so as to achieve a formation and a radius of the arch in accordance with the three factors to which you testified earlier?

A. That's right. If you do not regulate the arch, you would have a very uneven screen and it would not fit. You would have loose and tight spots all the way through it.

Q. Do you know of anything in the art in the production of wire screens where the shape of the arch was not regulated? A. No, I do not.

Q. What effect would it have if you set your die so as to take the arch out entirely, what effect would it have on the shape of the crimp? [537]

Mr. Catlett: I believe that has been covered again and again.

The Court: The objection is overruled.

The Witness: It would make it too sharp, it would make the crimp sharp like in the Potter patent. I might say that is a disadvantage for the reason that you cannot use as hard a wire where you bring it up gradually.

Mr. LeSourd: That is all.

Mr. Catlett: That is all.

The Court: You may step down.

(Witness excused.) [538]

FRANK E. ESSLEY

called as a witness by and on behalf of plaintiffs, having been previously duly sworn, was examined and testified as follows: [188*]

Direct Examination

In answer to questions by Mr. LeSourd, the witness stated:

I testified on prior examination that I was with Roebling from 1920 to 1945. During the time that I was with Roebling I never saw a screen manufactured by them of the type of Exhibit A-5, which was sent out with the deposition of Mr. Lippincott. It did not appear during that time in any catalog I ever saw.

The second catalog of Plaintiffs' Exhibit 17 is a catalog of Roebling's aggregate wire screen copyrighted 1947. I got this from the Portland office of John A. Roebling. I got it as soon as it had arrived in Portland. I happened to be in the office a couple of days after they had received these catalogs and they gave me one. That was in the latter part of 1947. There is not shown in this catalog any screens similar to defendants' Exhibit A-5.

The third volume of Plaintiffs' Exhibit 17 is the catalog of Roebling's wire cloth and wire screening, reprinted with revisions, 1948. I got that from the Portland office of John A. Roebling's Sons Company. I have examined this exhibit and do not find in it any screen similar to that of Defendant's Exhibit A-5. I have also examined the first volume of

*** Page numbering appearing at bottom of page of original certified Transcript of Record.**

(Testimony of Frank E. Essley.)

Exhibit 17 and there is no screen shown similar to Defendants' Exhibit A-5.

(Plaintiffs' Exhibit 17 is received in evidence.)

I know of no catalog of Roebling's prior to 1947 which contains a flat top type screen. I have examined the screens being used on the McNary Dam project. I found some of Mr. Kaye's screens there. Some of Mr. Palmer's screens are being used there. I have examined both Mr. Kay's and Mr. Palmer's screens on the job. I couldn't find anything that was different about them. In fact, if the screens did not have tags on them I couldn't tell [189] which was the Western Fence and Wire Works screen and which were the Pacific Wire Works screens. The screens of Mr. Kaye's at McNary Dam were similar to Plaintiffs' Exhibit 2, in the fact that they were made with a short gradual crimp and elongated arch.

Cross-Examination

In answer to questions by Mr. Catlett, the witness stated:

I do not know whether Mr. Kaye sent in any inch and a half screens to the McNary Dam. I don't know that he didn't. I don't know anything about it. I do not believe I know Joseph E. Lippincott. I might have met him while I was at the factory. I probably met him but I don't remember. I have been a salesman out here on the coast.

(Both the plaintiff and the defendants rested and at 4:30 o'clock p.m. Friday, October 21, 1949, proceedings recessed until 2:00 o'clock p.m., Monday, October 24, 1949.)

October 24, 1949, 2:00 o'Clock P.M.

The Court: In the case on trial, you may proceed with the arguments at this time.

(Arguments made by counsel on behalf of plaintiffs and defendants.)

The Court: Mr. Palmer upon final questions put to him during the rebuttal testimony in effect testified that the arch, which is claimed by him as one of the patentable features under the plaintiffs' patent, is formed as an incident to the crimping process. It was spoken of at various times during the testimony as possibly being capable of some control by applying counteracting pressure [190] during or after the making of the crimps, but there is no statement of a definite formula to accomplish the desired curvature of the arch, either in the patent claims or in the evidence.

Essentially, the forming of the arch to accommodate the resulting pattern of the screen is not primarily the thing which is manufactured, but it is a by-product of the thing which is manufactured. The crimp is the primary product of the manufacture.

In a way, the plaintiffs' making of the arch while putting crimps into the wires might be likened to

the making of sawdust in the manufacture of lumber. The log is applied to a saw which strips the log into planks or boards, and in doing so sawdust falls by the way. And so in the crimping of the steel spring wire for the purpose of forming in it grooves to serve as seats for transverse wires, there is in the connecting wire between the crimps a resulting arch produced by the crimping process. The plunger in the press which makes the crimp may be pressed down hard or less hard to produce a deep or shallow crimp, but there is nothing mechanically planned or done to produce an exactly shaped or curved arch so far as any stated principle is concerned. There is no explicit, certain formula or governing principle for the making of plaintiffs' patented curve or the crimp.

It is not possible for a stranger, however skilled, to know with certainty how to employ plaintiffs' statement of principles for producing the Palmer patent crimps and arches. Likewise, a stranger to the patent cannot from any statement in the patent claims know exactly how to produce or to avoid producing the patented articles of the plaintiffs.

Connected with the patent claims or evidence of principles involved in the making of plaintiffs' patented article, [191] there is no exact mathematical or mechanical formula or description to guide the patented manufacture of a specific rock screen with exactly sized wire and with a definitely sized mesh of screen. There is to be found in plaintiffs' patent claims and evidence no statement of exact depth of

the crimps nor of controlling curvature angle or radius of the arches in the plaintiffs' patented screen.

The overwhelming weight of the testimony produced in the case convinces the Court that this curve, the by-product of crimp production in the wire, has been known to the art for a period of time extending back materially before the plaintiff claims to have invented that curve, and the way it was dealt with by some manufacturers was to apply a counteracting force to keep it from forming, or after it was formed in the production of the crimp it was pressed out again. The Galloway patent process clearly shows the same principle of an arch as that claimed in the plaintiffs' patent, and the Galloway patent was prior to the plaintiffs'. The Potter patent process found the same arch formation in the connecting link of wire between the crimps, but it was usually pressed out after it formed, or by counter pressure the arch was prevented from forming.

There was nothing definite done by the plaintiff under the plaintiff's patent to determine the exact formation of the arch to accommodate its binding effect upon the transverse wires in the screen manufacture varying with the different size of screen mesh desired. There was nothing peculiar to the sizing of the meshes that was definitely left undone by the plaintiff in the patented process under the plaintiff's patent, which controlled the curvature of the arches.

It is obvious by an examination of these exhibits,

several different ones, that as the size of the mesh increased, [192] the curvature was less pronounced, and therefore it must be obvious that the binding effect of the arch upon the transverse wires lessened as the size of the mesh increased. At any rate, no stranger could take any statement among the claims stated in the plaintiff's patent or any statement made by plaintiff Palmer in his testimony and by the aid of such statement either certainly construct a woven wire screen conforming exactly to any Palmer patent screen or certainly avoid constructing a screen when made which would not infringe the screen claimed to be patented under the plaintiff's patent.

There is no invention in either the crimp or the arch claimed to be patented under the plaintiff's patent. There is nothing new or useful in the principles of such crimp and arch not known or used in the prior art.

The Court finds, concludes and decides that the plaintiff's patent has no validity and, if the Court is wrong in that finding, that there is no infringement of plaintiff's patent by anything done by the defendants and complained of in this action.

(At 4:50 o'clock p.m., Monday, October 24, 1949, trial proceedings concluded.)

Receipt of copy acknowledged.

[Endorsed]: Filed March 1, 1950. [193]

[Title of District Court and Cause.]

CERTIFICATE OF CLERK, U. S. DISTRICT COURT TO RECORD ON APPEAL.

United States of America,
Western District of Washington—ss:

I, Millard P. Thomas, Clerk of the United States District Court for the Western District of Washington do hereby certify that pursuant to the provisions of Subdivision 1 of Rule 11 as Amended of the United States Court of Appeals for the Ninth Circuit, Rule 75(o) of the Federal Rules of Civil Procedure as amended, and designation of counsel, I am transmitting herewith all of the original pleadings and documents on file and of record in said cause in my office at Seattle, as set forth below, and that said pleadings and documents together with Plaintiffs' Exhibits numbered 1 to 21, inclusive, and Defendants' Exhibits numbered A-1 to A-37 inclusive, introduced in evidence at the trial of said cause constitute the record on appeal from the decree for defendants filed and entered November 14, 1949, to the United States Court of Appeals for the Ninth Circuit, to wit:

1. Complaint. U. S. Letters Patent No. 2074665.
2. Summons with Marshal's return thereon.
3. Appearance of defendants.
4. Answer of defendants.
5. Note for Assignment Docket.
6. Consent to Filing of Amended Answer by Defendants.

7. Amended Answer.

8. Deposition of J. E. Lippincott, behalf defendants.

9. Deposition of L. W. Jones, Jr., behalf defendants.

10. Bill, Catharine A. Cawley, stenographic services, $20.00

11. Cross-Interrogatories to be proposed to L. W. Jones, Jr.

12. Affidavit of Catharine A. Cawley, to Jones deposition.

13. Deposition of Frank M. Guess, behalf defendants.

14. Subpoena, Barney M. Rose, with Marshal's return.

15. Subpoena, M. T. Bowie, with Marshal's return.

16. Stipulation re trial of question of infringement first.

17. Trial Brief of defendants.

18. Memorandum Brief of Plaintiff on Points and Authorities.

19. Findings of Fact and Conclusions of Law.

20. Decree for defendants, filed and ent. Nov. 14, 1949.

21. Plaintiffs' Proposed Findings of Fact and Conclusions of Law.

22. Court Reporter's Transcript of Court's Decision.

23. Motion plaintiffs for new trial.

24. Statement of Reasons and Authorities in Support of Motion for New Trial.

25. Order Denying Motion for New Trial.

26. Notice of Appeal of Plaintiffs. (Copy of Clerk's letter transmitting copy to opposing counsel attached.) (Filed 12/13/49.)

27. Bond for Costs on Appeal. (St. Paul-Mercury Indemnity Co., $250.00.)

28. Notice of Appeal of plaintiffs (filed Dec. 20, 1949). (Copy of Clerk's letter of transmittal of copy attached.)

29. Court's Decision on Plaintiffs' Motion for New Trial.

30. Motion of Plaintiffs to Extend time for Filing Record on Appeal.

31. Order Extending Time for Filing Record on Appeal to Mar. 13, 1950.

32. Court Reporter's Transcript of Proceedings at Trial.

33. Plaintiffs' Designation of Record on Appeal.

34. Narrative Statement of Transcript of Proceedings at Trial.

35. Plaintiffs' Statement of Points Intended to be Raised on Appeal.

36. Motion of Plaintiffs for Order Directing Transmittal of Original Exhibits to Court of Appeals.

37. Order Directing Transmittal of Original Exhibits to Court of Appeals.

38. Stipulation re Transmittal of Original Exhibits, after parties have completed briefs.

In Witness Whereof I have hereunto set my hand and affixed the official seal of said District Court at Seattle, this 4th day of March, 1950.

MILLARD P. THOMAS,
Clerk,

[Seal] By /s/ TRUMAN EGGER,
Chief Deputy.

[Endorsed]: No. 12495. United States Court of Appeals for the Ninth Circuit. Samuel H. Palmer and C. A. White, partners doing business as Western Fence & Wire Works, Appellants, vs. Karl H. Kaye, Matilda Kaye and Pacific Wire Works Co., a Corporation, Appellees. Transcript of Record. Appeal from the United States District Court for the Western District of Washington, Northern Division.

Filed March 10, 1950.

/s/ PAUL P. O'BRIEN,
Clerk of the United States Court of Appeals for the Ninth Circuit.

In the District Court of the United States for the Western District of Washington, Northern Division.

No. 2106

SAMUEL H. PALMER and C. A. WHITE, Partners Doing Business as WESTERN FENCE & WIRE WORKS,

Plaintiffs,

vs.

KARL H. KAYE, MATILDA KAYE and PACIFIC WIRE WORKS CO., a Corporation,

Defendants.

STIPULATION

It Is Hereby Stipulated and Agreed between Little, Leader, LeSourd & Palmer, attorneys for the plaintiffs in the above-entitled action, and Catlett, Hartman, Jarvis & Williams, attorneys for the defendants, that the following Exhibits in this matter shall be certified and transmitted forthwith to the Clerk of the Court of Appeals for the Ninth Circuit, to wit: Plaintiffs' Exhibits 1, 10, 11, 12, 13, 14, and 15.

It is further stipulated that with the exception of the exhibits heretofore enumerated, the balance of the exhibits shall be held under the terms of the Stipulation between the parties, dated March 1,

1950, in this Court until the parties have completed their briefs on appeal.

Dated this 23rd day of March, 1950.

/s/ F. A. LeSOURD,
Attorney for Plaintiff.

/s/ FRED W. CATLETT,
Attorney for Defendants.

[Endorsed]: Filed D.C. March 24, 1950.

[Endorsed]: Filed C.C.A. March 28, 1950.

In the Court of Appeals of the United States for the Ninth Circuit

No. 12495

SAMUEL H. PALMER and C. A. WHITE, Partners Doing Business as WESTERN FENCE & WIRE WORKS,

Appellants,

vs.

KARL H. KAYE, MATILDA KAYE and PACIFIC WIRE WORKS CO., a Corporation,

Respondents.

APPELLANTS' STATEMENT OF POINTS AND DESIGNATION OF RECORD

Come now the appellants by and through their attorneys, Little, Leader, LeSourd & Palmer, and as their statement of points intended to be relied

upon on appeal, adopt the statement of points intended to be raised on appeal filed by appellants as plaintiffs in the District Court, and as their designation of record on appeal, these appellants designate the entire file in the Clerk's original file on this case, including appellants' Narrative Statement of the Proceedings at the Trial, Statement of Points, and Designation of Record.

Dated this 15th day of March, 1950.

LITTLE, LEADER, LeSOURD & PALMER,

By /s/ F. A. LeSOURD,
Attorneys for Appellants.

Receipt of Copy Acknowledged.

[Endorsed]: Filed March 16, 1950.

[Title of Court of Appeals and Cause.]

STIPULATION RE PRINTING OF RECORD

It is hereby stipulated by and between Little, Leader, LeSourd & Palmer, attorneys for appellants herein, and Catlett, Hartman, Jarvis & Williams, attorneys for respondents herein, that the printed record in this Court should contain the following, and that the documents contained in the Clerk's file of the United States District Court for the Western District of Washington, Northern Division, which have been transmitted to this Court,

which are not hereinafter enumerated, need not be printed:

1. Complaint;
2. Amended Answer;
3. Stipulation concerning trial of the infringement issue first;
4. Plaintiffs' Proposed Findings of Fact and Conclusions of Law;
5. Findings of Fact and Conclusions of Law;
6. Decree;
7. Motion for New Trial;
8. Order Denying Motion for New Trial;
9. Court's Decision on Motion for New Trial;
10. Notice of Appeal dated December 20, 1949;
11. Order Extending Time for Filing Record on Appeal;
12. Plaintiffs' Designation of Record on Appeal;
13. Appellants' Narrative Statement of the Proceedings at the Trial, except that the portion of the Reporter's original Transcript of Proceedings of Trial commencing with line 1, p. 501, and ending with line 12, p. 538, shall be substituted for the Narrative Statement of the testimony of Samuel H. Palmer on rebuttal found on pages 175 to 188 inclusive of the appellants' Narrative Statement of the Proceedings at Trial;
14. Plaintiffs' Exhibits 1, 10, 11, 12, 13, 14, 15;
15. The following condensation of Plaintiffs' Exhibit 20:

"This agreement of partnership made and en-

tered into this 1st day of January, 1943, at Portland, Oregon, by and between Samuel H. Palmer, party of the first part, and Clifford A. White, party of the second part, both of Portland, Multnomah County, Oregon;

* * *

V.

"The initial capital of said partnership shall consist of the sum of Ten Thousand and no/100 ($10,000.00) dollars cash as working capital; the machinery, patents and apparatus of a fixed and agreed value of ten thousand nine hundred eighteen and 46/100 ($10,918.46) dollars which machinery and apparatus is now located upon the aforesaid premises, inventory of which is appended hereto marked "Exhibit A * * *"

* * *

(Signatures)"

EXHIBIT A

* * *

Patents
Flint Screen Patents

* * *"

It is further agreed between the parties hereto that the following corrections shall be made to the Reporter's Transcript of Proceedings at Trial in printing the portion thereof to be included in the record: On page 535 of the Reporter's Transcript, line 18, the word "seaming" should be changed to

"shimming." On line 19 the word "seamed" should be changed to "shimmed." On line 20 the word "seams" should be changed to "shims." On line 21, the word "seamings" should be changed to "shimmings" and on line 25 the word "seams" should be changed to "shims."

Dated this 15th day of March, 1950.

LITTLE, LEADER, LeSOURD & PALMER,
By /s/ F. A. LeSOURD,
Attorneys for Appellants.

CATLETT, HARTMAN, JARVIS & WILLIAMS,
By /s/ FRED W. CATLETT,
Attorneys for Respondents.

[Endorsed]: Filed March 16, 1950.

[Title of Court of Appeals and Cause.]

MOTION FOR CONSIDERATION OF EXHIBITS IN ORIGINAL FORM.

Come now the appellants by and through their attorneys, Little, Leader, LeSourd & Palmer, and move the Court for an order relieving appellants from printing and reproducing all of the exhibits in this case, with the exception of Plaintiffs' Exhibits 1, 10, 11, 12, 13, 14, 15 and 20, and directing that the exhibits not printed be considered by the Court in their original form.

This motion is based on the files and records in this action and on the affidavit of F. A. LeSourd attached hereto.

Dated this 15th day of March, 1950.

LITTLE, LEADER, LeSOURD & PALMER,
By /s/ F. A. LeSOURD,
Attorneys for Appellants.

So Ordered.

/s/ WILLIAM DENMAN,
Chief Judge.

/s/ H. T. BONE,

/s/ WALTER L. POPE,
United States Circuit Judges.

Approved this 15th day of March, 1950.

CATLETT, HARTMAN, JARVIS & WILLIAMS,
By /s/ FRED W. CATLETT,
Attorneys for Respondents.

State of Washington,
County of King—ss.

F. A. LeSourd, being first duly sworn, on oath deposes and says:

That he is one of the attorneys for the appellants in the above-entitled action; that Plaintiffs' Exhibits 1, 10, 11, 12, 13 and 14 were Patent Office copies of various patents and that sufficient copies have been requested from the Patent Office to sup-

ply to the Clerk for binding in the printed record herein; that Plaintiffs' Exhibit 15 is a letter which may properly be printed in the record herein, and that Plaintiffs' Exhibit 20 consists of a partnership agreement, the relevant portions of which can be summarized in the printed record herein.

That all of the other exhibits of both plaintiffs and defendants should not be printed and reproduced, but should be examined by the Court in their original form for the following reasons: They consist of wires or wire screens which cannot be reproduced; catalogs and advertisements containing drawings and illustrations which are the relevant portions of the exhibits and should be examined by the Court; the file wrapper and contents of the Patent Office containing illustrations which should be examined by the Court; photographs of screens and dies which should be examined by the Court, and invoices which should be examined in their original form.

That by order of the Honorable John C. Bowen, Judge of the District Court of the United States for the Western District of Washington, Northern Division, in the above action, the Clerk was directed to transmit the exhibits in this case in their original form to this Court; that a Stipulation has been filed in the District Court herein agreeing between counsel for appellants and counsel for respondents that the exhibits to be considered by this Court in their original form may remain in the District Court in Seattle until such time as

the parties hereto have completed their briefs in this matter, at which time they shall be forwarded to the Clerk of this Court.

Further affiant sayeth not.

/s/ F. A. LeSOURD,

Subscribed and sworn to before me this 15th day of March, 1950.

[Seal] /s/ M. E. DAVIES,

Notary Public in and for the State of Washington, Residing at Seattle.

[Endorsed]: Filed March 28, 1950.